

MagicWeb

User Manual

Software Version VA60C and higher





This software is CE-compliant and is defined as a class IIa medical device in accordance with Medical Devices Directive 93/42/EEC.

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Some of the specifications described herein may not be currently available in all countries. Please contact your local sales representative for the most current information.

Caution:

US federal law restricts this device to sale by or on the order of a physician (or properly licensed practitioner).

Information in this manual may be subject to changes without prior announcement.



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Document Version 27.00

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System Overview

MagicWeb is a software product for the distribution of image and report data via intranet or Internet.

MagicWeb is ideal both for complex requirements of large hospitals and for specialists' practices. The system can be customized to provide the optimum solution for each customer.

In this section you will find an overview of the MagicWeb system and its data security concept, and an introduction to the MagicWeb user documentation available for this software.

Intended use

MagicWeb is a solution for distributing, viewing, and processing medical images within and outside healthcare environments.

The MagicWeb server receives image data in DICOM format via the hospital network. This provides universal connections to archives, modalities, and workstations. The supported modalities are listed in the DICOM Conformance Statement.

MagicWeb is to be used only by trained and instructed healthcare professionals. It can support physicians and/or their medical staff in providing their own diagnosis for medical cases. The final decision regarding diagnoses, however, resides with the doctors and/or their medical staff in their own area of responsibility.

Although the employed web and thin client technologies allow the software to be run on a variety of hardware platforms, for diagnostic purposes the user must make sure that the display hardware used for reading the images complies with state-of-the-art diagnostic requirements and currently valid laws.

Only DICOM for presentation images can be used on an FDA approved monitor for mammography for primary image diagnosis. Only uncompressed or non-lossy compressed images must be used for primary image diagnosis in mammography.

Please note

If MagicWeb is delivered by Siemens it is not intended for primary diagnosis and does not support the DICOM archive and DICOM print functionality.

Constancy check

MagicWeb is a category A diagnostic imaging device (DID) for which the equipment used and the ambient conditions at the installation site must meet special requirements (RöV German X-Ray Ordinance dated January 8, 1987 in the version dated June 18, 2002 amending the RöV and other atomic energy ordinances). Imaging devices of this category are labeled accordingly.

The user is required to perform a monthly constancy check on these imaging devices in compliance with RöV, §16, per DIN 6868-57 (DIN V 6868-57:2000, Image quality assurance in diagnostic X-ray departments, Acceptance testing for image display devices).

The characteristic and reference values for the constancy check shall be defined during the acceptance test. The reference values shall be ascertained using the user's test instruments (luminance meter, at least class B (DIN 5032-7) with valid calibration, range 0.05 cd/m² to 10,000 cd/m²).

Product overview

MagicWeb is a client/server application. It comprises the following components:

- Central MagicWeb server(s) in the hospital and
- MagicWeb clients in the wards, in special departments or in the physicians' practices.
- 3D Thin Clients (optional)

In this section you will find information on:

- *System architecture*
- *License management*
- *System requirements*
- *Hints for MagicWeb installation*
- *Archiving with the archive option*

System architecture

In a hospital, all radiological patient data is collected on a central web server, for example, for the duration of the patient's stay. Each modality used to examine the patient sends the study data not only to a long-term archive but also to the web server.

If physicians require information on patients and their examinations they can call up an MagicWeb client from anywhere within the hospital intranet and will find the re-

quired study information there. In order to make sure the patient information on the web server is complete and up to date physicians can query other nodes in the network for recent examination data.

Whereas a HIS/RIS only makes administrative data generally available throughout the hospital, the MagicWeb solution takes the idea of central data collection and universal availability of data one step further. MagicWeb makes radiological study data, which includes DICOM image data and reports, available at the clinical workplace.

In this context, the central web server functions as temporary storage medium of image data (usually for the duration of a patient's stay at the hospital, e.g. 2-4 weeks) and as an image distribution center.

Moreover, MagicWeb also extends beyond the hospital and its internal data network. With appropriate authorization the web server can be accessed from the outside as well, making use of the Internet. This way referring physicians can quickly and easily call up information on the examination results of their patients. Accessibility via the Internet also proves helpful in critical situations where the opinion of an additional external expert is required.

The use of a secure data transmission protocol and additional data encryption options ensure high data security for this kind of data distribution via the Internet.

Web server

MagicWeb servers are web servers with a database to which the relevant image material is transmitted after examination or reporting. An internationally standardized transmission protocol as defined in the DICOM standard is used for this purpose.

Note

MagicWeb will not be able to guarantee the availability of data if studies/series that have been transferred by other network partners contain errors.

As a rule, the image data remains on the MagicWeb server only for as long as a patient is undergoing treatment or is an actual in-patient. How long data will be stored on the MagicWeb server depends on the storage capacity of the RAID system and on the license.

Please be sure to dimension your RAID in accordance with the data volumes in your institution.

Data storage in MagicWeb is based on the FIFO (first in, first out) principle. Changes to patient data result in the data being given a new time stamp. Once the storage capacity of the system has been reached, the oldest data is automatically deleted in order to create space for new image material. The data can be reloaded from the hospital's archive at any time if needed.

Web clients

MagicWeb allows you to log on to the MagicWeb server and to access the data that is stored on the server using the HTTP/HTTPS protocol.

Data can be accessed in two different ways:

- From the various wards or departments of a hospital via the intranet or

- From outside the hospital, that is, from physicians' practices via the Internet (fast transmission rates are recommended)

MagicWeb uses the Microsoft Internet Explorer as a web browser.

To implement the functions required for editing images, special software components are used that are based on ActiveX. By using standard Internet technology it is therefore possible to use standard PCs as viewing stations.

3D Thin Client option

With the additional 3D Thin Client option from Visage Imaging, the system also supports distribution of 3D image data generated from state-of-the-art scanning modalities.

A 3D render server (application server) processes the 3D data and makes it available over an intranet or Internet connection for 3D image viewing and evaluation. The actual DICOM data remains on the 3D application server and is not transferred to the 3D clients. Instead of image data a stream of compressed screen content is transmitted during interaction, which allows for safe and consistent access even to large volumes of 3D data.

License management

Every MagicWeb installation comes with a license code. Without it the software will not run.

Licenses

The license code serves as copy protection and controls which product options are enabled. This includes:

- The maximum number of DICOM connections for calling/importing data from the network onto the MagicWeb system, and for sending data from the MagicWeb system.
- How many users may access data on the server simultaneously (per client type).
- The maximum data volume on the system
- Activation/deactivation of the audit trails.
- The availability of an archive option.
- The availability of the HL7 (Health Level Seven) option.
- The availability of the GSM (Global Session Manager) option.
- The availability of the worklist server option.
- The availability of the failover option.
- The accessibility of the 3D Thin Client.

MagicWeb uses the so-called "floating licenses" concept. This means that a license is not bound to a particular user name or a dedicated workstation or PC. A license for 10 users means that 10 users can work with a MagicWeb or 3D Thin Client at any one time. If an 11th user tries to log on, he or she is told to try again later. Once one of the original 10 users logs off, logon of the 11th user will be permitted. Of course, licenses can be upgraded.

Upgrade

When upgrading an installation the old license becomes invalid. The new MagicWeb license, which comes with the upgrade, must be installed.

If a larger data volume was licensed in a previous version, this may lead to the oldest data being deleted from the system after the new license has been installed, depending on the “auto-delete” settings defined by the system administrator.

Client types

MagicWeb provides different client types with different levels of functionality:

- **MagicWeb View** with essential image viewing functions.
- **MagicWeb Basic** offering more image handling and review functions.
- **MagicWeb Advanced** with full functionality.
- **MagicWeb Advanced Dual Monitor** with **Advanced** functionality plus support of two monitors.
- **MagicWeb Advanced Reading** with features that can support primary reading. The client type **Advanced Reading** is available with the **Advanced** licence.

For a detailed comparison of the client types refer to the *Appendix*.

If your installation does not support one of these license types an error message will be displayed when you try to log in.

System requirements

When describing system requirements we make a distinction between server and clients.

Server

For a specification of the hardware and software requirements for MagicWeb servers please contact your sales representative.

Clients

These are the minimum hardware and software requirements for MagicWeb PCs:

- **Operating system and software**

Microsoft Windows 7, or

Microsoft Windows XP, or

Microsoft Windows Vista

Microsoft Internet Explorer 6, 7, or 8

Microsoft NetMeeting (optional equipment for teleconferencing)

- **Computer/processor**

Intel Pentium III with at least 500 MHz (Intel Pentium IV, 2 GHz recommended)

- **RAM**

256 MB RAM (more memory may be required depending on the size of your images)

- **Hard disk**

At least 2 GB free hard disk space

- **Graphics card**

Resolution of at least 1024x768 pixels, true color

- **Monitor**

17" color monitor (21" recommended) or grayscale monitor

Note

Mammographic images may only be interpreted using an FDA-approved monitor that provides at least 5-Mpixel resolution and meets other technical specifications reviewed and accepted by the FDA (U.S. only).

Tip

If you are working with high-resolution monitors your system administrator can configure the display of MagicWeb so that larger font sizes and icons are shown.

- **Other**

Network link or ISDN/analog modem

Loudspeakers, microphone, and web cam (optional for use with Microsoft Net-Meeting Software)

Hints for MagicWeb installation

During installation the MagicWeb server is listed as a *Trusted Site*. To ensure that the MagicWeb ActiveX components can be installed on the client computer you must set the security level for *Trusted Sites* in the relevant network zone (intranet or Internet) to **Medium** or **Low**. The security level **High** would prevent ActiveX components from running.

In order to change the security level for *Trusted Sites*:

1. Open the **Internet Options** (menu **Tools > Internet Options**) dialog box in the Internet Explorer.
2. Click the **Security** tab card.
3. Click **Trusted Sites** and **Custom Level**.
4. Check the settings for *Trusted Sites* and change them if necessary.

5. Also be sure to disable **Use PopUp Blocker**, if you are working with Windows XP, Service Pack 2 or higher.

In order to add a *Trusted Site* manually:

1. Enter the MagicWeb URL (e.g. `http://servername/en`) in the Internet Explorer address bar.
2. Select and copy the URL (**Ctrl + C**).
3. Open the **Internet Options** (menu **Tools > Internet Options**) dialog box in the Internet Explorer.
4. Click **Trusted Sites** and **Sites**.
5. Paste the URL in the **Add this Web site to the zone** box (**Ctrl + V**).
6. Click **Add** and then close the dialog box with **OK**.

Note

For installation, administrator privileges are required on the client computer.

Tip

At some sites MagicWeb is distributed in the Windows Domain with a so-called MSI Package. If this is the case MagicWeb will be installed automatically, no user interaction is required here.

Archiving with the archive option

With the archive option, data is sent to the archive according to a configurable schedule.

These archive options are available:

- Archiving on RAID hard disks
- Archiving on SAN and NAS devices

Which archiving method is used will depend on your requirements, the hardware used, and the configuration of archive option.

Tip

Archiving is always performed in the background. As a user you will not actively intervene in archiving. However, you can monitor the status of archiving in the study list and exclude studies from archiving.

Data protection and data security

Data relating to individuals is subject to data protection. In this regard, please ensure compliance with all applicable laws and regulations in your country.

MagicWeb provides extensive security mechanisms that help you assure data protection and data security:

On the administration platform the system administrator can also activate the audit trail option. This ensures that the system follows the strict regulations concerning patient data protection and data security according to US law.

Note

For security reasons, it is not permitted to make changes to the product MagicWeb and its database. Contravention of this will lead to all guarantees being revoked and under some circumstances may even be violating applicable laws.

Access control and authentication

MagicWeb employs a user management concept that controls both access to study data and the availability of program functions.

Each user must log in on to a MagicWeb client with a **user name** and **password**. The MagicWeb server checks these entries. Only if they match is access to the system granted.

Access to data

Access rights to study data are defined by the system administrator on the MagicWeb server. The basic idea is that only those users who are involved in a particular case should have access to study data.

Access authorization ensures that users can only view data for which they have access rights.

Access to program functions

In addition to restricting access to data, the system administrator can also make certain program functions available to some users but not to others. This way, every user will find only those icons and functions on the user interface that he or she really needs. Controlling the range of functions available for each user also adds to data security. The availability of potentially critical functions such as making specific patient data available to other users or deleting data that is no longer needed can be restricted to more experienced users.

When a function is disabled on a user level, the icon or input field for that function is also disabled.

MagicWeb comes with a number of preset user levels with predefined functionalities. The MagicWeb system administrator can adapt these user levels to your requirements.

Login and password	To ensure that user accounts and their passwords are effectively protected from unauthorized access: <ul style="list-style-type: none">• passwords are encrypted and, if this has been configured <ul style="list-style-type: none">• passwords will expire• failed login attempts are recorded, and multiple failed login attempts will cause a user account to be locked.
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Note

Recording logins and other actions only makes sense if all users on the system have their own user names and passwords.

Tip

You should change your password from time to time for data security reasons.

User profiles	The working environment of each user (user profile) is saved on the server when you log out. This supports roaming, which means that you can log in from any computer and find exactly the working environment you are accustomed to.
Auto logoff	MagicWeb can be configured so that a logged in user is logged off from the system after a configurable period of time with no user interactions. This prevents licenses from being unnecessarily blocked and stops any unauthorized persons accessing data if a user has logged on but has forgotten to log off again.
Multi-session operation	If configured, a user may log on to MagicWeb more than once from different PCs. Multi-session operation allows users to work from more than one clinical workplace simultaneously and view the same data there. Each session makes use of (and thereby blocks) one license.
Service access permissions	Remote access for service purposes must be granted explicitly. It is therefore up to you if and to what extent you wish to grant access rights to service. <ul style="list-style-type: none">• Full Access Service has read and write permissions. This means that service personnel can analyze problems and can solve these problems or change settings. Service access is logged.• Limited Access Service has read permission only.• No Access Service has no access.

Note

Please note that with full access, service is granted unlimited access. Under certain circumstances this may include patient data which has not been anonymized.

Audit trails

Logging of user actions in MagicWeb occurs in so-called audit trails. Audit trails are recordings of access-controlled actions. They are the proof that access to patient data is monitored.

A message informs users that their actions may be monitored.

The following activities are recorded if the audit trail option has been activated by the system administrator:

- Changes to access rights with accessing user, date and time
- Viewing, printing, or deleting patient data
- Changes to archived images with time, date and user
- Login and logout, and failed attempts to log in
- Service sessions (local or remote)
- Software updates, as well as backup and restore

In addition the highest original number of images is recorded, to compare the current number of images.

Audit trails must be kept for a number of years. It is the responsibility of the system administrator to ensure that the relevant log files are archived according to the requirements that apply to your institution and country.

The system administrator is the only user who has access to the audit trails via a dedicated viewer.

For larger systems, a separate database server can be made available for audit trails.

Encryption

With MagicWeb, data is transmitted in accordance with the SSL (Secure Socket Layer) standard. For this purpose, a security certificate, which is essential to guarantee the security of data transfer, is installed automatically on your computer the first time you start the program. Data is then automatically transmitted over a secure connection. Furthermore, it is advisable to additionally encrypt the images using the encryption function of MagicWeb for transmission.

For MagicWeb users who access the web server over the Internet, the system administrator can set data encryption as a default for each data transfer. The system

administrator can also make sure that these Internet users cannot deactivate data encryption themselves.

Overview of the MagicWeb product documentation

The MagicWeb product documentation distinguishes between three user groups and the tasks that these groups typically perform.

- Clinical users

These users access the MagicWeb server from a MagicWeb or 3D Thin Client in order to review 2D, 3D, or report data (MagicWeb) or to view and process 3D volume data (3D Thin Client).

The MagicWeb and 3D Thin Client **user documentation** addresses this user group.

- System administrator

The system administrator of the hospital will perform system maintenance and adapt server configuration and database settings to changes in the system and network environment. This user group works on the administration platform.

The MagicWeb **administrator documentation** addresses this user group.

- Service personnel

This user group will install the system and subsequently perform initial system configuration. This group will need the **installation manual** for system installation and the administration documentation for initial system configuration.

In this section you will find an overview of the available product documentation as well as information on how to work with the MagicWeb user manuals, online guide, and online help systems.

User and administrator documentation

The MagicWeb product documentation addresses the information needs of each of these user groups.

User documentation The MagicWeb and 3D Thin Client user documentation addresses clinical users.

It comprises:

- The **MagicWeb** user documentation

In these documents clinical users will find a complete description of the MagicWeb user interface and program functionality.

In the printed **user manual** (this document) you will find a complete description of all MagicWeb functions.

The **online guide** offers additional information and task-oriented descriptions presented in a step-by-step style. Online guides are available on your installation medium in English and German.

MagicWeb also features a **context-sensitive online-help system** which you can call up right from the user interface. The context-sensitive help topics explain all the user interface elements and features of the currently displayed screen in your native language. For the English and German user interface the online help system also contains task-oriented step-by-step instructions.

- The **3D Thin Client** user documentation

The **user manual** (pdf file and/or printed manual) provides a complete description of all 3D Thin Client functions.

3D Thin Client also features an **online-help system**, which you can call up from the Help menu. The various help topics explain the user interface of the client software.

Tip

You can download the user documentation as pdf files. Follow the corresponding link on the login screens.

Administrator documentation

The MagicWeb administrator documentation supports system administrators in a hospital. It helps them with user management and adapting the system to changes in the overall network environment, if this becomes necessary.

The MagicWeb administrator documentation also helps service personnel with initial system configuration tasks right after system installation or update.

- The **Administration Manual**

This document is available as a pdf file on your installation medium. You can print out this document if you prefer reading on paper.

- The administration platform **Online Help System**

The MagicWeb administration platform features a context-sensitive online-help system.

The context-sensitive help topics explain the parameters you will find and the settings you can make on the various configuration screens. Whenever relevant, background information on selected topics is also given in the online help system.

Service documentation

Installation instructions for single-server systems are available on your installation medium. Installation instructions for cluster systems and CS systems are available for Siemens service personnel only.

Release notes

Release notes contain additional useful information about the software. They focus on technical details. You can find the release notes document on your installation medium.

Information on using the MagicWeb manuals

Document structure	<p>In order to help you locate relevant information in the MagicWeb manuals quickly, they are subdivided into chapters.</p> <p>In the MagicWeb user manual and online guide each chapter addresses a specific task or group of tasks relevant to your daily work with the product. For experienced users, <i>The MagicWeb Window</i> section serves as a concise reference guide.</p> <p>The <i>Table of Contents</i> and <i>Index</i> sections help you locate a topic quickly.</p>
Layout conventions	<p>To help you find and interpret the appropriate information, the following visual orientation aids are used here:</p> <ul style="list-style-type: none">Operating steps <p>Single-step actions are presented as plain text.</p> <ol style="list-style-type: none">Operating steps in sequences of actions are numbered. <ul style="list-style-type: none">Bold text <p>Names of windows, menus, and functions are shown in bold typeface. Sections of text given particular emphasis are also highlighted in bold type.</p>
Tips, notes, warnings	<p>Tips, notes, and warnings are highlighted.</p> <p>Tip</p> <p>Tips provide additional useful information about a topic. Tips, for example, help you organize your work more efficiently.</p> <p>Note</p> <p>Notes mark text that you should pay special attention to. A note may, for example, emphasize a piece of information relating to the safety of functions, but where no direct danger is involved.</p> <p>Caution</p> <p>Caution is used to indicate the presence of a hazard, which can cause personal injury to a patient, or damage to the equipment.</p>

Information on using the online help systems

The MagicWeb and 3D Thin Client user interfaces, and the MagicWeb administration platform feature an online-help system each.

Calling up online help

You can call up the online help system from any MagicWeb window.

Click the help icon on the MagicWeb navigation bar along the left edge of the window to open the context-sensitive online help system.

Tab cards

The left half of the MagicWeb online help window shows tab cards for quick access to the help contents.



This tab card contains a table of contents similar to that of a printed book.



1. Double-click the book icon to display a topic and show subheadings.



2. Click the page with the question mark icon to display the text of a help page in the right half of the window.



You can search for index entries here.

1. Enter a word you want to search for.

-Or-

Scroll through the alphabetical index.

2. Double-click an index entry to display the information about it.



This tab card permits a full-text search.

1. Enter a word to search for.

2. Press the **RETURN** key.

All help topics containing this word will be listed.



On this tab card you can set bookmarks for help topics that are of particular interest to you.

1. Display the topic you want to add to the **Favorites** list.

2. Click **Add**.

Links to other topics

In various help topics you will find links that will take you to more detailed information about a subject.

Text links are shown in blue and underlined.

Links in overview graphics are shown in italics.

Scrolling from topic to topic

Use the **next** and **previous** icons in the footer of each help topic to scroll through the online help system topic by topic.

Help window toolbar

The upper part of the help window shows a number of icon buttons. Use these buttons to adapt the help window, scroll through topics, and print topics.



Shows the online help tab cards if they are hidden and then changes to the **Hide** button.



Hides the online help tab cards if they are shown and then changes to the **Show** button.



Returns to the previous topic.



Returns to the next topic (after you have clicked **Back**).



Prints the current topic on the set printer.



Shows a menu with more help functions.

Starting and Ending the Program

This section tells you how to start MagicWeb, log onto the server, and close MagicWeb properly at the end of each session.

Depending on your system configuration, the type of data connection you are using to access the web server, and the settings made by your system administrator, you will use one of the following methods for calling up MagicWeb and logging onto the MagicWeb system.

When you have finished working with MagicWeb do not forget to log off from the system again.

Calling up the login screen

Before attempting to start MagicWeb, make sure Microsoft Internet Explorer is installed on your PC.

See also *System requirements* on page 7.

MagicWeb will not work with older versions of the Microsoft Internet Explorer or Web browsers of other manufacturers. When you log onto the system, MagicWeb checks whether the correct browser is installed. If it is not, a message tells you which browser you need.

Standard languages The MagicWeb user interface is available in six languages. You choose a language when you call the MagicWeb login screen.

1. Connect to the Internet (or Intranet).
2. Start the Internet Explorer.
3. Enter the address (URL) of the MagicWeb server.

http://servername (for the default user interface language)

http://servername/de (for the **German** program version)

http://servername/en (for the **English** program version)

http://servername/fr (for the **French** program version)

http://servername/es (for the **Spanish** program version)

http://servername/it (for the **Italian** program version)

http://servername/pt (for the **Portuguese** program version)

Servername is a placeholder for the name of the MagicWeb server on the network.

URLs that follow the convention of previous software versions (<http://servername/magicweb/en> or <http://servername/magicweb/en>) are also still valid.

Customer-specific translation

If a customer would like to have the user interface translated into any other language than those listed above, a separate directory is available for this.

The customer-specific directory ... /cs contains a version of the user interface that can be translated into other languages.

The address of the login page in this case is:

<http://servername/cs> (for **customer specific** program version)

Shortcuts

To speed up the call-up procedure for subsequent logins you can create shortcuts to the login screen.

1. Enter the URL of the MagicWeb server in the Internet Explorer address bar.
2. Select **Favorites > Add to Favorites** in the Internet Explorer menu.

-Or-



Reduce the Internet Explorer window so that it no longer covers the entire screen, and click this icon in front of the URL and drag it onto your Windows desktop.

3. Select MagicWeb in the **Favorites** menu of the Internet Explorer.

-Or-



Double-click the MagicWeb icon on your desktop next time you want to call up the MagicWeb login screen.

Downloading the user manual

1. Click on the text link *Download user documentation* on the login screen.

The link takes you to a web page where you will find the user manual as pdf file in the language you have selected for the user interface.

2. You can download the pdf file from here onto your local PC in order to view it online or print it out.

Microsoft Windows Vista

When you are calling the login screen from a Windows Vista system for the first time MagicWeb cannot be installed automatically.

1. Follow the link to a download web page that will be displayed instead of the login screen.
2. Click the link **MagicWeb_WebClientInstall.msi** on this page.

This link will help you with installing MagicWeb on your computer

Standard system login

After you have entered the address of the MagicWeb server, the MagicWeb login screen is shown.

1. Select one of these client types: **View**, **Basic**, **Advanced**, **Advanced 2 Monitors**, or **Advanced Reading**.

-Or-

Call up the MagicWeb login screen in your preferred client type, e.g.:

http://servername/en/view (for client type **View**)

The client type **View** is not supported by MagicWeb.

http://servername/en/classic (for client type **Basic**)

http://servername/en/expert (for client type **Advanced**)

http://servername/en/2monitor (for client type **Advanced 2 Monitors**)

http://servername/en/expertreading (for client type **Advanced Reading**)

2. Enter your **user name** and **password**.

MagicWeb makes a distinction between upper and lower case letters.

3. Press the **RETURN** key or click the **Login** button.

The MagicWeb patient window opens.

If you are unable to log in, either the maximum permissible number of users may be logged in at the moment or your license does not support the selected client type. In this case, try logging on again a few minutes later or select another client type.

If MagicWeb still does not start, check the network connection or contact your system administrator.

Dual monitor

In dual monitor mode you work with two monitors simultaneously. The operating elements and screen areas of MagicWeb are distributed over two monitors. This makes working with MagicWeb easier.

Dual monitor mode is only available if you have an **Advanced** license and the required user privileges.

Multiple sessions

If your administrator has activated this function for you, you can log on to several workstations with the same user data and continue on one workstation with the work you started on another one.

Automatic client update

Every time you log onto the MagicWeb server, the server automatically checks whether a more recent version of the client software is now available. Client update starts automatically, unless your system administrator has disabled this option. A message is displayed in this case.

Integrated Windows authentication

If your client is connected to the hospital network (Windows domain), you can work with MagicWeb without entering a user name and password. Your Windows login will be used instead.

Note

Integrated Windows authentication is only possible for users whose accounts were imported in the MagicWeb system from Windows and for whom the integrated Windows authentication privilege has been set by the system administrator.

Before calling MagicWeb via integrated Windows authentication for the first time:

Start the Internet Explorer and call up the standard MagicWeb login screen once (e.g. <http://servername/en>).

After that use the following URL for calling MagicWeb via integrated Windows authentication:

<https://servername/en/iwa>

-Or-

<https://servername/en/iwa/view>

<https://servername/en/iwa/classic>

<https://servername/en/iwa/expert>

<https://servername/en/iwa/2monitor>

<https://servername/en/iwa/expertreading>

Call-up from another software program

If you are working with other clinical applications on your PC you might be able to call up MagicWeb directly from such a program (e.g. a hospital or radiology information system (HIS/RIS) or electronic patient browser).

If MagicWeb has been integrated in the other clinical software application, the program will start automatically whenever you select one or more images and call up image display. You do not have to enter your login data every time you call up image display in this case. The selected images are immediately displayed in the MagicWeb viewer window.

If your MagicWeb installation includes the MagicWeb 3D Thin Client license both clients will be called up automatically when you select a patient and study on the HIS/RIS for which 3D volume data are available on the MagicWeb system. Joint OEM call of course requires that the HIS/RIS has been configured to call MagicWeb with the correct parameters and that your MagicWeb user account holds appropriate user rights.

Changing your password

You should change your password from time to time for data security reasons.

1. Open the MagicWeb login screen.
2. Open the popup menu of the login screen with the right mouse button.
3. Select **Change Password** from the popup menu.
4. Enter your **user name** and your old **password**, as usual, and press **RETURN**.

You are now prompted to enter a new password on the login screen.

5. Enter the new password in the **New Password** box.
6. Enter the new password a second time in the **Confirm** box and press **RETURN**.

Use the new password from now on when logging in.

Tip

If the login screen popup menu does not contain the **Change Password** item, ask your system administrator to configure this for you.

Logging off from the web server

Logging off from the server

You should always log off from the MagicWeb system.

If images are currently being loaded, please cancel loading with the **Esc** key before you log out.



Click this icon in the lower part of the navigation bar.

This logs you off from the MagicWeb system. The MagicWeb login screen is displayed again.

-Or-



Click this icon in the top right corner of the program window.

This logs you off from the MagicWeb system and also closes the Internet Explorer.

Tip

If you are working with a 1024x768 screen resolution the logoff icon in the lower left-hand corner of the navigation bar may not be visible.

Press F11 for a full-screen display of the Internet Explorer in this case. In this view the logoff icon is always available.

Tip

Your system administrator can configure an HTML link to an Internet page after manual logoff.

Automatic logoff

If MagicWeb observes no activity for a certain time (default setting: 15 minutes) a message box appears. You are prompted to confirm that you wish to continue working. If you do not answer you will be logged off automatically after a few seconds. The license you were using is now available for another user.

Only the system administrator can change the automatic logout time.

The MagicWeb Window

This section describes the screen layout and the windows you use when working with MagicWeb. You will find a brief functional description of the individual windows, the icons, and other elements here.

You open the MagicWeb windows via the navigation bar on the left-hand side of the screen.

Tip

The online guide, which is available in German and English and which you received as a PDF file on your MagicWeb installation medium, provides more detailed information and instructions for working with MagicWeb. If you are working with an English or German user interface you can also download the online guide from the login screen.

Navigation bar

Using the icons on the navigation bar you can quickly switch to any of the other MagicWeb windows. Switching to another window will not load any data into that window. Instead the data you last loaded to that window is displayed.

Dual monitor

If you are working with two monitors, the navigation bar appears at the left edge of the left monitor and on the right edge of the right monitor. It contains the same icons on both monitors.



Audit Warning

A message is displayed. It informs you that only authorized users are permitted to use MagicWeb and that all your actions may be recorded.

This icon is displayed only if the audit trail license is installed and display of this icon has been configured.



Patient Window

Lists all patients that were found by the last database query.

You can select a patient here to display his or her study list next. When you have logged on to the client type Advanced Reading, the patient window is shown in worklist view.

**Study/Series Window**

Shows all examinations and series of the selected patient. If you activate the preview area, you will see preview images of the selected study or series in the right half of the window.

**Image Preview (not for dual monitor)**

Shows one or all series of an examination as thumbnails. You can select individual images, or one or more series and load them into the viewers.

**Report Window**

If a report is stored on the MagicWeb server for a selected study, you can view the report text in this window.

-Or-

**Report with Image**

You can display images of a study together with the report text.

**Viewer 1**

Displays the images of a selected study, series, or individual selected images in viewer 1.

**Viewer 2**

Displays the images of a selected study, series, or individual selected images in viewer 2.

**Compare Mode (vertical)**

Splits the screen down the center and displays the images loaded in viewer 1 on the left-hand side and the images loaded in viewer 2 on the right-hand side.

**Compare Mode (horizontal)**

Splits the screen across the center and displays the images loaded in viewer 1 in the upper half of the screen and the images loaded in viewer 2 in the lower half.

**Basic MIP/MPR Viewer**

Displays the basic MIP/MPR viewer (only possible for image data that is suitable for 3D reconstruction).

**Display Protocol Viewer**

Shows the loaded images in a screen layout that has been optimized for primary reading. This icon and viewer are only available if you have logged on to the client type Advanced Reading.

**Status information**

Displays information about all data transfer jobs in the network as well as a list of all logged on users.

**Help**

Calls a context-sensitive online help topic with an explanation of the window that is currently active.

**Logoff**

Logs you off from the MagicWeb server.

Patient window



In the patient window you can search for the patient whose images you wish to review.

You can search for the patient in the local database (web server) or in the database of a configured DICOM partner.

Entering filter and search criteria will make searching easier.

Note

To ensure the confidentiality of patient data, the system administrator will, as a rule, restrict which examinations you are able to access. As a referring physician you may, for example, only be able to view the data of your own patients.

Dual monitor

When you are working in dual monitor mode, the patient list is spread over both monitors. The filter elements are shown on the left monitor only.

Patient Name	Patient ID	Date of Birth	Sex	Modalities	Patient Comment	Report	Delete Protect
Brasher Regina	10020385	1937-01-18	F	CT	-	-	-
Damonte Kipp	10020388	1940-04-12	M	CT	-	-	-
Fields Sara	10020399	1965-03-17	F	XA	-	-	-
Hogan Clark	10010200	1927-02-23	M	PT	-	-	-
Moffatt Eugene	10020386	1928-02-19	M	XA	-	-	-
Puntion Ellen	10020389	1939-05-17	F	CT	-	-	-
Thorson Mathea	10020386	1933-02-19	F	HC	-	-	-

Information area (patient window)

This area of the patient window shows the user name you are logged in with.



Hide/show filter criteria

Use this icon for collapsing (or expanding) the filter parameters and search criteria section of the screen.

Patient List Active window where you are now.

User name User currently logged in.

Filter parameters

Here you select criteria for filtering the patient list.

Study Date Here you can select a period. After a database query, the patient list will only show patients examined over this period.

Today - lists all patients examined today.

Yesterday - lists all patients examined yesterday.

The last X days - lists all patients examined over the last X days.

Date - lists all patients examined on this day.

From date to date - lists all patients examined within the stated period.

All - lists all patients, irrespective of examination date.

Modality Here you can filter the patient list according to modality.

Click the ▼ icon next to the filter parameter **Modality**.

Check one or more modalities.

After a new database query, only patients examined with this modality or these modalities will be shown.

Physician Here you can filter the patient list according to the name of the **referring, performing, and/or reporting physician**.

Click the ▼ icon next to the filter parameter **Physician**.

Check the box **Referring physician, Performing physician, and/or Reporting physician** and type the name of the physician. Or type A for all physicians whose name begin with A, for example.

-Or-

Open a list of all names by clicking on the ▼ icon behind an entry field. A list drops down with all referring, performing, or reporting physicians of the studies you have access to. Select a name.

If you are searching in the network, the patient list can only be filtered according to the referring physician.

Location	Here you can filter the patient list according to the patient's ward or the name of the institution where the patient was examined.
	Click the ▼ icon next to the filter parameter Location .
	Select a Ward or Institution Name .
Insertion Date	Here you can sort the patient list according to the date when the patients' data were transferred to the web server.
	Today - lists all patients whose studies were transferred to the web server today.
	Yesterday - lists all patients whose studies were transferred to the web server yesterday.
	The last X days - lists all patients whose studies were transferred to the web server during the last X days.
	Date - lists all patients whose studies were transferred to the web server on that particular day.
	From date to date - lists all patients whose studies were transferred to the web server within the stated period.
	All - lists all patients, irrespective of when their studies were transferred to the web server.
Interpretation Status	Here you can filter the patient list according to the processing status of procedure steps:
	SCHEDULED - lists all patients whose studies contain procedure steps that are scheduled for interpretation.
	IN PROGRESS - lists all patients whose studies are currently being reviewed in one of the MagicWeb installations in your network.
	DISCONTINUED - lists all patients whose studies contain procedure steps with interpretation status discontinued.
	COMPLETED - lists all patients whose studies contain procedure steps with interpretation status completed.

Search criteria

Here you can enter search criteria for a database query. If you do not remember a name or number you can use wildcards in your search. (E.g. **Mil** to find **Miller**, **Milford**, **Miltner**, or ***mil** to find all the above and also **Hamilton**, or **AB??34** to find **AB1234**, **AB0034**, and **AB11345678**.)

Patient Name	Searches for a patient by name. Enter the patient name in the format: <i>last name first name middle name prefix suffix</i> . For example: <i>Doe John Jack Dr. for Dr. John J. Doe</i> .
Patient ID	Searches for a patient ID.
Patient Comment	Searches for a patient whose studies contain a specific comment.

Date of Birth	Searches for a patient by date of birth. Use the date format indicated next to the search box. (Your system administrator can configure this format for you). Also remember to enter the complete date of birth here (day + month + year). You cannot, for example, search by year of birth only.
Study ID	Searches for a patient with this study ID.
Study Description	Searches for a patient with this study description.
Accession Number	Searches for a patient with this accession number.

Toolbar (patient window)

In the patient window you will start all processing steps with the icons of the toolbar.



User-defined filter

You can select a predefined filter here.



Reset to Default Filter

Activates the filter defined as the default filter.



Set Filter Properties

The **Personal Settings** dialog box opens. You can define your own filters here.



Reset Filter Settings

All the filter parameters you entered are removed. Click **Start Data Query** to display the unfiltered patient list again.



Reset Input Fields

All the search criteria you entered are removed. Click **Start Data Query** to display a longer patient list again.



Data source

Here you select where to search for data: on the local web server database or on a DICOM network node.



Start Data Query

Starts a data query with the current filter and search criteria in the selected data source. As a result the patient list of the web server or a response list from a DICOM node will be displayed.



Cancel Data Query

A query currently in progress is stopped. All patients found so far are displayed.

**Retrieve Study from DICOM Node**

If you did not request data in the local database, but on a network node, you will see the response list of the DICOM node in the patient window. If you find the patient you are looking for in this list, you nevertheless cannot work with this data immediately. You must first copy the patient to the local database with this icon.

This icon is dimmed while the data source web server is selected, or while no patient is selected in a network response list.

**Query Patient**

This icon is active if a patient was selected in the local patient list and then a DICOM partner was selected in the data source drop-down list.

The patient name and the patient ID of this patient are copied into the search criteria boxes and the search for this patient is started on the DICOM partner.

**DICOM Send**

Opens a dialog box. Select the address(es) in your DICOM network to which you want to send the selected patient(s).

**DICOM Quick Send**

Sends the selected patient(s) to one or several DICOM nodes immediately. (Your system administrator has defined these addresses for you.)

**Forward**

For a better overview the patient list does not display all patients found at a time.

After a very generic patient search that results in more patients found, click this icon to page through the list of all patients found.

**Backward**

Click this icon to page backward through the list of all patients found.

**Set Delete Protection**

Delete-protected patients cannot be deleted (neither automatically by the program nor manually by the user).

**Remove Delete Protection**

Cancels delete-protection for the selected patient(s).

**Delete Patients**

The selected patient(s) is/are deleted from the local database if delete protection is not active.

The status bar shows the progress of deletion. You cannot continue your work until deletion has been completed.

**Change Group Assignment**

The **Change Group Assignment** dialog box opens. Here you can define which user groups have access to the selected patients.

**Change User Assignment**

The **Change User Assignment** dialog box opens. Here you can define which users have access to the selected patients.

**Export Patient**

The data of the selected patient(s) is exported. The data is first written to a directory on the server and then written to CD or DVD depending on the configuration. If you use a CD or DVD producer station, disks can be recorded automatically. Next to the icon the volume of data that is stored for the selected patient(s) in the MagicWeb database is displayed.

**Launching Application**

Starts another web application if your system administrator has configured this for you. The icon is only active if you have selected a patient.

System messages

This part of the patient window shows important messages from the system.

Patient list (local)

The local patient list shows all patients found in the web server database who match the search criteria, and to whom you have access. The patient list contains only *one* entry for each patient even if several studies exist for this patient.

Tip

You can sort the list by clicking on a column header.

Patient Name Name of the patient

Patient ID Patient's identification number

Date of Birth Date of birth in YYYY-MM-DD format

Sex **M** = male, **F** = female, **O** = other (unknown)

Modalities Modalities used to examine the patient

Patient Comment Comment text about the patient

Report **Yes** - a report exists on the MagicWeb server for one of this patient's studies.

No - no report exists on the MagicWeb server.

In the study/series window you can query for reports on configured report network nodes.

Delete Protect **Yes** - this patient cannot be deleted

No - this patient can be deleted

Study Date Date and time of the study in the format: YYYY-MM-DD and hh:mm:ss (24-hour clock).

If more than one study exists, the date of the most recent study is displayed.

Insertion Date Date and time when the patient data was sent to the MagicWeb server.

Response list (network node)

If you selected a network node as the data source instead of querying the local MagicWeb server, you will see the response list of the DICOM node instead of the local patient list. Here a patient name may be listed more than once as each entry represents exactly one study.

Tip

You cannot load patient data directly from the response list of a DICOM node into the study/series window. You must first copy a patient to the local database by double-clicking the patient entry, or with the **Retrieve Study from DICOM Node** icon.

Patient Name	Name of the patient.
Patient ID	Patient's identification number
Study Date	Date of the study in YYYY-MM-DD hh:mm:ss format.
Date of Birth	Date of birth in YYYY-MM-DD format
Sex	M = male, F = female, O = other (unknown)
Accession Number	Job number of the patient in the HIS/RIS (hospital or radiology information system)
Study Description	Description of the study
Number of Images	States how many images are stored for this study on the selected network node.
Referring Physician	Name of the referring physician
Archive Status	(archive option only) Here you can monitor the status of archiving of this study. The archive status tells you about the availability of the study in the archive. <input checked="" type="checkbox"/> Completely archived <input type="checkbox"/> Partially archived <input type="checkbox"/> Not yet archived
Patient Comment	Comment text about the patient.

Study/series window



The study/series window contains all studies, series, and presentation states of the patient currently selected in the patient list.

You use the study/series window to select a study, series, individual images, or a presentation state for display in one of the image viewers. To facilitate image selection you can display the images of a study as thumbnails in the right screen half of the study/series window.

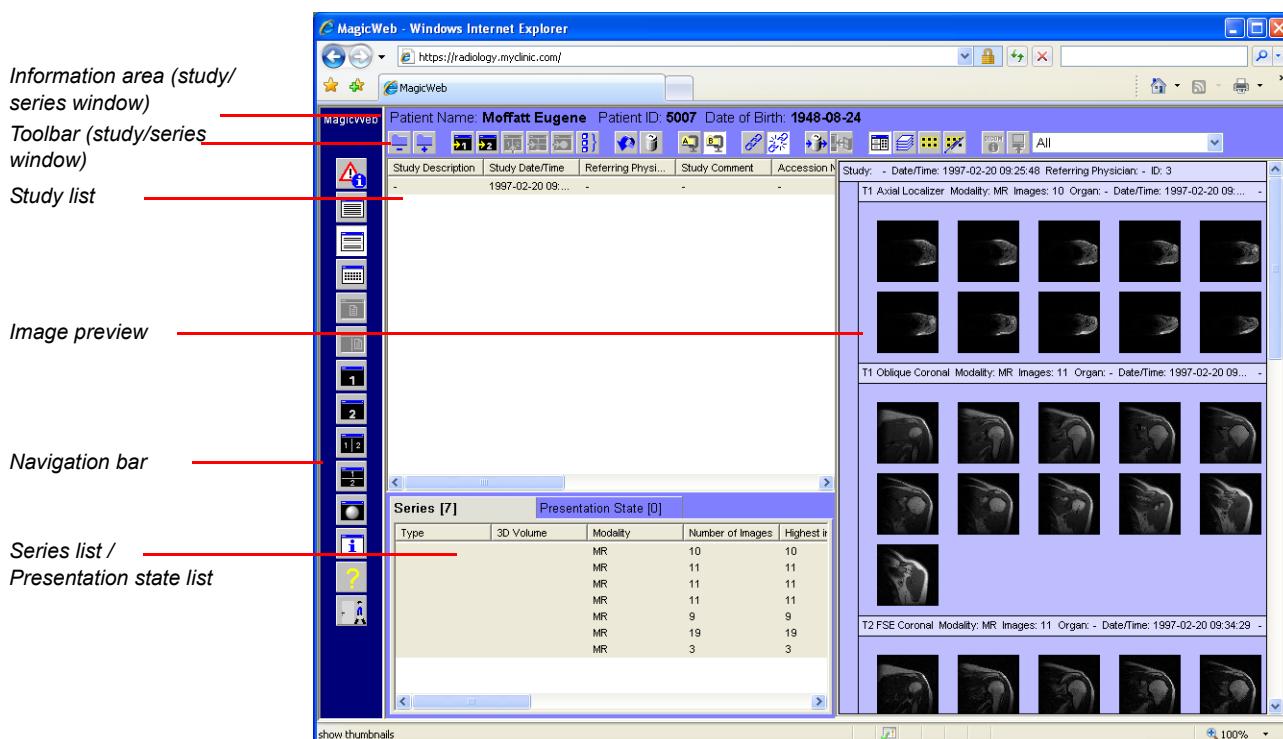
Series and presentation state tab cards

A presentation state comprises all those images of a study that the reporting physician considered particularly important. Presentation states are compiled at the diagnostic workstation that sends the study to the web server.

A presentation state also preserves the image display settings (such as window values, or zoom/pan settings) that were used at the time when the presentation state was created. Presentation states are usually available in both compression levels (A and B) unless matrix reduction has been configured for any of the images they refer to. In that case no presentation states are available for that particular compression level and the study may contain a different number of presentation states for level A and B.

Dual monitor

In dual monitor mode, the study/series window is shown on the left monitor. The right monitor shows the preview area. It is *not* possible to hide the preview area in dual monitor operation.



Information area (study/series window)

This area of the study/series window provides information about the loaded patient.

Patient Name Name of the loaded patient.

Patient ID Identification number of the loaded patient.

Date of Birth Date of birth of the loaded patient.

Toolbar (study/series window)

In the study/series window you will start most of your processing steps with the icons of the toolbar. But note that a popup menu is also available for selecting images in the image preview area.



Previous Patient

Shows the studies and series of the patient above the patient currently selected in the patient list.



Next Patient

Shows the studies and series of the patient below the patient currently selected in the patient list.



Show all Studies

When MagicWeb is called from another application via the OEM interface, this icon shows all studies of the current patient.



Load into viewer 1

The selected study, series, presentation state, or individual images are loaded into viewer 1.



Load into viewer 2

The selected study, series, presentation state, or individual images are loaded into viewer 2.



Load to Compare Mode

Loads the first two series of a selected study, or two selected series, or two images into compare mode (side by side).



Load to Compare Mode

Loads the first two series of a selected study, or two selected series, or two images into compare mode (top and bottom).



Load to Basic MIP/MPR Viewer

Loads the selected series into the basic MIP/MPR viewer.

Only CT or MR series that are suitable for 3D reconstruction can be loaded into the basic MIP/MPR viewer.

**Load all series as one**

Click this icon before you load an entire study into one of the viewers to merge all images of this study into one “viewing series”.

**Refresh**

The study/series window is updated.

**Delete object**

Pops up a dialog box and allows you to select what you want to delete from the web server: the entire study, the study reports (if available), or a presentation state, or one or several selected series only.

**Archive Protection**

Sets or removes archive protection for the selected study.

**Change Procedure Step**

Procedure steps are tasks in the diagnostic reading workflow. With MagicWeb you can follow up on the task interpretation from scheduling this task to completion.

For studies for which no procedure step exists: Creates a new procedure step and allows you to assign the new procedure step a priority.

For studies for which a procedure step exists: Allows you to delete the procedure step, mark it as completed (or reset it to scheduled), or change its priority.

**Compression Level A**

Transfers images with compression level A. In compression level A, the images are usually only slightly compressed and without loss of quality. Your system administrator defines the compression rules for your system.

**Compression Level B**

Transfers images with compression level B, which compresses the images even more.

Note that compressed images do not contain the full volume of data of the original. The diagnostic quality of the images is affected as a result.

**Encrypted Data Transfer**

The images are transmitted encrypted.

**Non-encrypted Data Transfer**

The images are transmitted without encryption.

**Query Report**

Requests a report on the currently selected study from the configured report network node. If a report on the selected study already exists on the MagicWeb server, the report is downloaded again and the existing report is overwritten.

**Use Local Cache**

If this icon is activated, the images you download from the web server are stored in your local cache memory.

When you load images into a viewer, MagicWeb searches the local cache first and only retrieves data from the web server if no images are found in the local cache.

This option speeds up your workflow if you need to load and review one study several times during one MagicWeb session. It is recommended for networks with low data transfer rates.

**Preload Study**

Loads all images of a selected study into the local cache for the duration of your session. When you subsequently load these images into a viewer and move on to this viewer the images are displayed immediately.

This icon is only active if **Use Local Cache** has also been selected.

**Image Preview on/off**

Switches display of the image area on or off.

**Truncate Thumbnails for Large Series**

Toggles thumbnail display for large series: one or all thumbnails per series are shown in the image preview section.

**Show Thin Slice Series**

When this option is selected the series list will list both thin slice series (original scan series) and thick slice series (generated image series which permit faster loading and browsing).

When this option is deselected only thick slice series are shown in the series list.

**Select all previews**

Selects all images in the preview area.

**Deselect all previews**

Deselects all images currently selected in the preview area.

**DICOM Information**

Shows the DICOM information of the image selected in the preview area.

**Launching Application**

Starts another web application if your system administrator has configured this for you. The icon is only active if you have selected a study.

**DICOM Send**

Opens a dialog box. Select the address(es) in your DICOM network to which you want to send the selected study (or studies) or series.

**DICOM Quick Send**

Sends the selected study (or studies) or series to one or several DICOM nodes immediately. (Your system administrator has defined these addresses for you.)

**Display as 3D volume**

Shows the selected data in the MagicWeb 3D Thin Client for advanced 3D evaluation.

**Automatic Synchronization with 3D volume**

Select this option to ensure that both the MagicWeb and the MagicWeb 3D Thin Client will always show images of the same patient.

**Marked images filter**

You can filter the study/series lists so that only images marked with a star or flag (or both) are displayed.

Study list

This list shows all studies of the patient selected in the patient list.

Online Status (for archive option only)

The online status tells you about the availability of the study in the local database.

- Completely available
- Partially available
- Not available

Archive Status (for archive option only)

The archive status tells you about the availability of the study in the archive.

- Completely archived
- Partially archived
- Not yet archived

Archive Protection (for archive option only)

Yes - study cannot be archived

No - study can be archived

Study Description

Description of the study

Study Date/Time

Date and time of the study in the format: YYYY-MM-DD and hh:mm:ss (24-hour clock).

Referring Physician

Name of the referring physician

Study Comment

Comment text about the study

Accession Number

Accession number of the study

Study ID

Study's identification number

Report

- no report is stored on the MagicWeb server for this study; **1 (2, 3, ...)** - one or more reports are stored on the MagicWeb server for this study. When you display or edit the report the most recent of these report versions will be shown.

Procedure Step

Indicates whether a procedure step exists for this study.

MagicWeb only supports procedure steps of the type *Interpretation* in this software version.

Status

Indicates the status of the procedure step: scheduled, in progress, discontinued, or completed.

Performer

Indicates the name of the MagicWeb user who is currently reviewing the images of this study, or who completed this procedure step.

Priority	Low, medium, or high. You can use this column to sort the study list, for example.
Non-viewable Series	Number of series that cannot be displayed

Series list

This tab card lists all series that are stored on the web server for the current study.

Type	With Show Thin Slice Series selected both the original scan series (thin slice series) and thick slice series are listed in the series list. When this icon is not selected only thick slice series are displayed. <ul style="list-style-type: none">  Thin slice series (original scan series, series with a large number of images)  Thick slice series (generated image series, series with a smaller number of images)
3D Volume	(MagicWeb 3D Thin Client option only) Indicates if a 3D volume data set is available for this series on the system. Only series with a 3D volume data set can be loaded into the MagicWeb 3D Thin Client.
Modality	Modality used to create the series
Number of Images	Total number of images of this series on the web server.
Highest Image Number	Highest available image number For modalities that work with single frame images, comparing the <i>Number of images</i> and the <i>Highest Image Number</i> helps you determine if all images of this series have been transferred to the web server.
Preloaded images	Number of images in the local cache
Organ	Examined organ or body part
Description	Description of the series
Performing Physician	Name of the performing physician
Series Date/ Time	Date and time of creation of the series in the format: YYYY-MM-DD and hh:mm:ss (24-hour clock).
Series number	Number of this series within the study
Marked images	In these columns you will find information about whether images in this series have been marked with a star or a flag.

Exam status Contains an icon that indicates the current examination status:



Prepared



Reported



Signed off



Unknown

If a new exam status has not yet been issued (status *New*), this column remains empty.

Report Status Contains an icon that indicates the current report status in the HIS/RIS:



Dictated



Written



Validated

Presentation state list

This tab card lists all presentation states that are stored on the web server for the current study and with the currently selected compression level (A or B).

Label	Presentation state label as entered on the diagnostic workstation where the presentation state was created.
Description	Descriptive text for this presentation state.
Content creator	Name of the user who created the presentation state object.
Creation Date/ Time	Date and time when the presentation state was created in the format YYYY-MM-DD and hh:mm:ss (24-hour clock).
No. of ref. images	Number of referenced images in this presentation state object.

Image preview

The image preview of the study/series window shows the images of the selected study or series as miniature images (thumbnails).

You use the preview area to select images or series. You can select an entire study, complete series, a presentation state or individual images from one or several series and then load them into a viewer. With large series that contain a large number

of images and slow data transmission lines, selecting and loading only those images that are relevant to your diagnostic problem will save time.

Moreover the image preview contains information about the study, series, and the images they contain. Refer to the preview window for details about:

- *Information about the study*
- *Information about a series*
- *Thumbnails*
- *Image preview popup menu*

Preview window

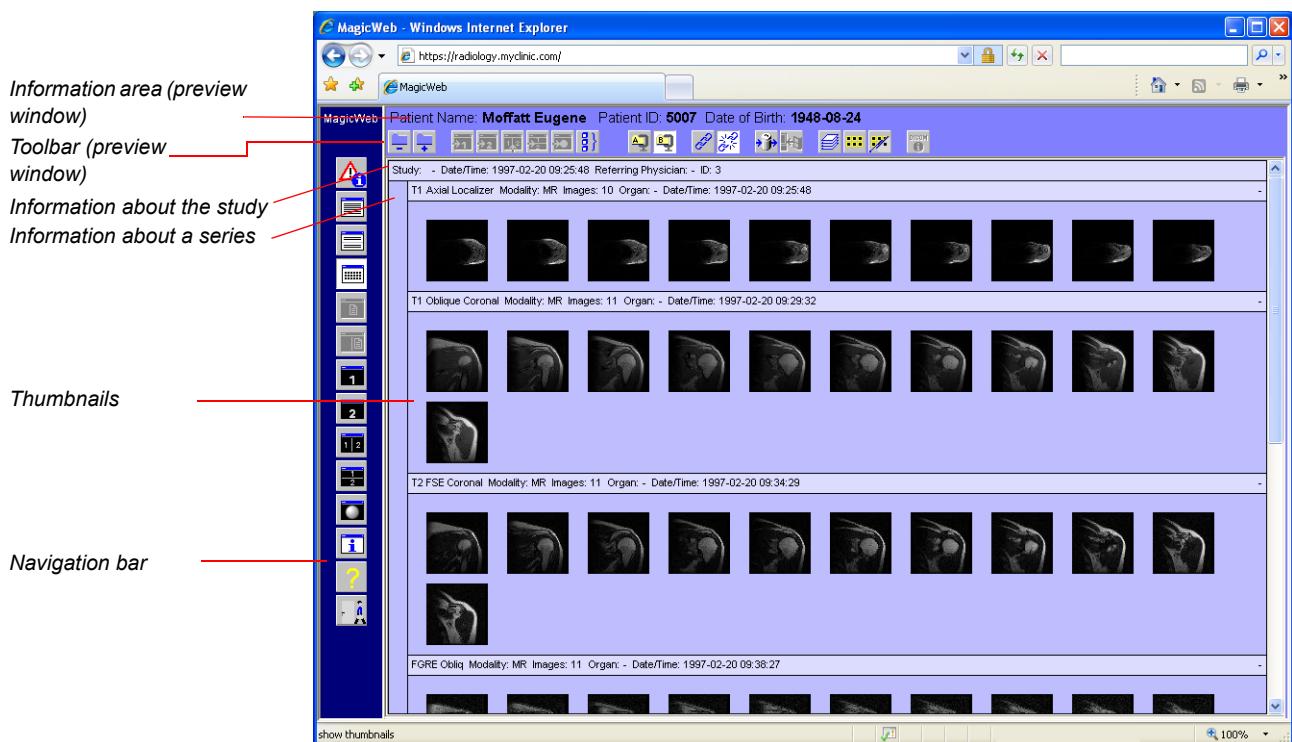


The preview window shows the images of the selected study or series as miniature images (thumbnails).

Unlike the preview area of the study/series window, this preview window shows the thumbnails over the full width of the browser window.

You use the preview area to select images or series. You can select an entire study, complete series, or individual images from one or several series and then load them into a viewer. With large series that contain a large number of images and slow data transmission lines, selecting and loading only those images that are relevant to your diagnostic problem will save time.

Moreover the image preview contains information about the study, series, and the images they contain.



Information area (preview window)

This area of the preview window provides information about the loaded patient.

Patient Name Name of the loaded patient.

Patient ID ID of the loaded patient.

Date of Birth Date of birth of the loaded patient

Toolbar (preview window)

In the preview window you will start most of your processing steps with the icons of the toolbar. But note that a popup menu is also available for selecting images.



Previous Patient

Shows the studies and series of the patient above the patient currently selected in the patient list.



Next Patient

Shows the studies and series of the patient below the patient currently selected in the patient list.



Load to Viewer 1

The selected study, series, or individual images are loaded into viewer 1.



Load to Viewer 2

The selected study, series, or individual images are loaded into viewer 2.



Load to Compare Mode

Loads the first two series of a selected study, or two selected series, or two images into compare mode (side by side).



Load to Compare Mode

Loads the first two series of a selected study, or two selected series, or two images into compare mode (top and bottom).



Load all series as one

Click this icon before you load an entire study into one of the viewers to merge all images of this study into one "viewing series".



Compression Level A

Transfers images with compression level A. In compression level A, the images are usually only slightly compressed and without loss of quality. Your system administrator defines the compression rules.

**Compression Level B**

Transfers images with compression level B, which compresses the images even more.

Note that compressed images do not contain the full volume of data of the original. The diagnostic quality of the images is affected as a result.

**Encrypted Data Transfer**

The images are transmitted encrypted.

**Non-encrypted Data Transfer**

The images are transmitted without encryption.

**Query Report**

Requests a report on the currently selected study from the configured report network node. If a report on the selected study already exists on the MagicWeb server, the report is downloaded again and the existing report is overwritten.

**Use Local Cache**

If this icon is activated, the images you download from the web server are stored in your local cache memory.

When you load images into a viewer, MagicWeb searches the local cache first and only retrieves data from the web server if no images are found in the local cache.

This option speeds up your workflow if you need to load and review one study several times during one MagicWeb session. It is recommended for networks with low data transfer rates.

**Preload Study**

Loads all images of a selected study into the local cache for the duration of your session. When you subsequently load these images into a viewer and move on to this viewer the images are displayed immediately.

This option is only active if **Use Local Cache** has also been selected.

**Truncate Thumbnails for Large Series**

Toggles thumbnail display for large series: one or all thumbnails per series are shown in the image preview section.

**Show Thin Slice Series**

When this option is selected the series list will list both thin slice series (original scan series) and thick slice series (generated image series which permit faster loading and browsing).

When this option is deselected only thick slice series are shown in the series list.

**Select all previews**

Selects all images in the preview window.

**Deselect all previews**

Deselects all images currently selected in the preview window.

**DICOM Information**

Shows the DICOM information of the selected image.

**Launching Application**

Starts another web application if your system administrator has configured this for you. The icon is only active if you have selected a study.

**DICOM Send**

Opens a dialog box. Select the address(es) in your DICOM network to which you want to send the selected series or image(s).

**DICOM Quick Send**

Sends the selected series or image(s) to one or several DICOM nodes immediately. (Your system administrator has defined these addresses for you.)

**Display as 3D volume**

Shows the selected data in the MagicWeb 3D Thin Client for advanced 3D evaluation.

**Automatic Synchronization with 3D volume**

Select this option to ensure that both the MagicWeb and the MagicWeb 3D Thin Client will always show images of the same patient.

Information about the study

The colored header bar of the study shows the following information:

study description date/time referring physician study ID

Tip

Click on the study information bar to select all images of this study or to invert the current selection of images. Double-clicking on the study information will load the entire study into viewer 1.

Information about a series

In the image preview thumbnails are grouped by series. Series header bars show the following information about a series:

series description modality number of images examined organ date/time additional series information

Tip

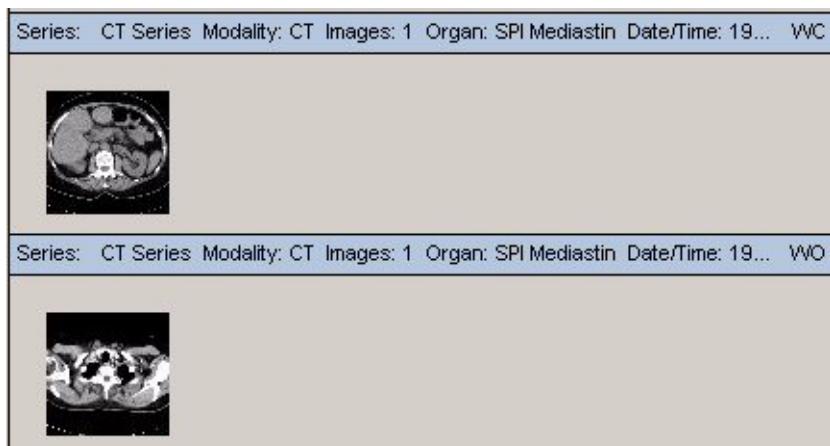
Click on the series information bar to select all images of this series or to invert the current selection of images. Double-clicking on the series information will load the entire series into viewer 1.

Additional series information

- CT: Series scanned with contrast medium

For CT series the abbreviation WC on the right edge of the series information bar indicates that these images were scanned with contrast medium. WO indicates that this series was scanned without contrast medium.

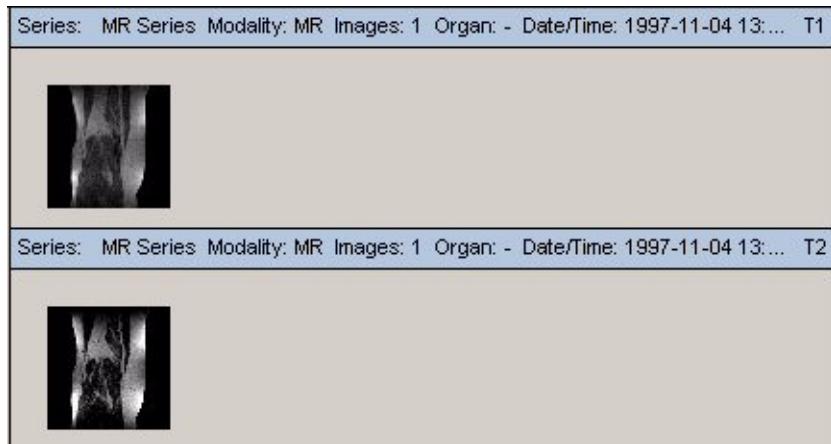
If a CT series contains both images that were scanned with and without contrast medium then MagicWeb splits up this series. The images are displayed grouped as two separate series.



- MR: T1/T2 series

For MR series, MagicWeb indicates if the series contains T1 or T2-weighted images.

If an MR series contains both T1 and T2-weighted images then MagicWeb splits it up. The images are displayed grouped according to their T1/T2-weighting.



Thumbnails

The way the thumbnails themselves are presented also provides information about image types and acquisition data.

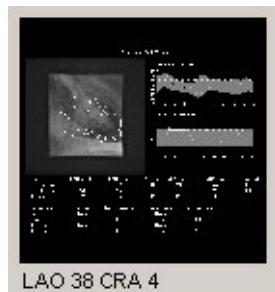
Multiframe images

Series of some modalities can contain single images or multiframe images. You will recognize multiframe images by the dog-ear shown in the top right corner of the thumbnail.



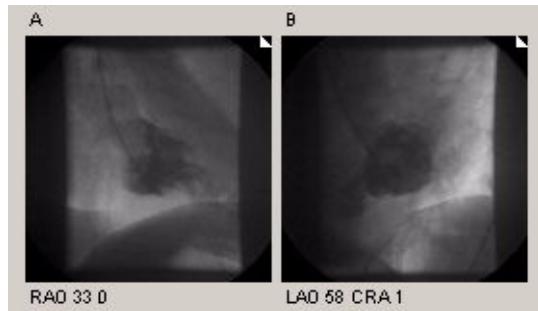
XA report or photofile images

XA series may contain report or photofile images with image evaluation information. Report/photofile images are displayed next to the corresponding multiframe as separate series.



Biplane scenes

XA scenes that have been recorded in biplane mode contain image pairs. You can recognize biplane scenes in the image preview by the fact that two multiframe images are close together.

**Truncated series**

For very large series so-called truncated thumbnail display mode can be enabled in the image preview (see *Truncate Thumbnails for Large Series* icon in the toolbar). One image from the middle of the series followed by three dots is shown in the image preview for such long series.

**MPPS (Modality Performed Procedure Steps)**

Support of MPPS (Modality Performed Procedure Steps) can either be activated or deactivated by your system administrator.

If MPPS support is deactivated, the display of the series is staggered according to the SeriesInstanceID, and using possible value pairs (e.g. image type).

If MPPS support is activated, however, the MPPS-ID is used to group series, together with further value pairs. If no MPPS-ID is available, then the display is staggered only according to these value pairs (e.g. image type). The original image sequence within an MPPS series is retained.



Image preview popup menu

A popup menu is available in the image preview section to help you select images and show image information.

Select	Selects the thumbnail the cursor is currently pointing to.
Deselect	Deselects the thumbnail the cursor is currently pointing to.
Select all	Selects all images of a study or series if the cursor points to the study or series title bar, or if the cursor points to anywhere between thumbnails.
Deselect all	Deselects all images of a study or series (depending where the cursor is currently pointing).
Invert Selection	Inverts the selection (i.e. selects the currently unselected images) of a study or series (depending where the cursor is currently pointing).
Image Info	Shows information about the image type and compression level settings for an image.

Report window

MagicWeb can display both images and reports.

MagicWeb provides a text-only view and a view in which images and report text are displayed side by side, and in which you can also edit a report.

Tip

Your system administrator can define that the report with image view is the preferred viewer. This means that it will automatically pop up when you double-click a study or series in the study/series or preview window for which a report exists on the MagicWeb system.

If no report is available locally and a report interface has been configured with automatic report query, MagicWeb will automatically search the HIS/RIS for the report every time you load images.



Use these icons on the navigation bar to switch to the report window or report with image view.

The icons are active if you have selected a study for which a report is available in the study/series window.

Tip

You must first load images into viewer 1 or viewer 2 before switching over to the report with image view. Otherwise the image section of this view will remain blank and only the report text will be shown.

-Or-



Click the **Edit Report** icon in the toolbar of one of the viewer windows to create a new report.

MagicWeb now shows the report with image window whose report section is in editing mode.

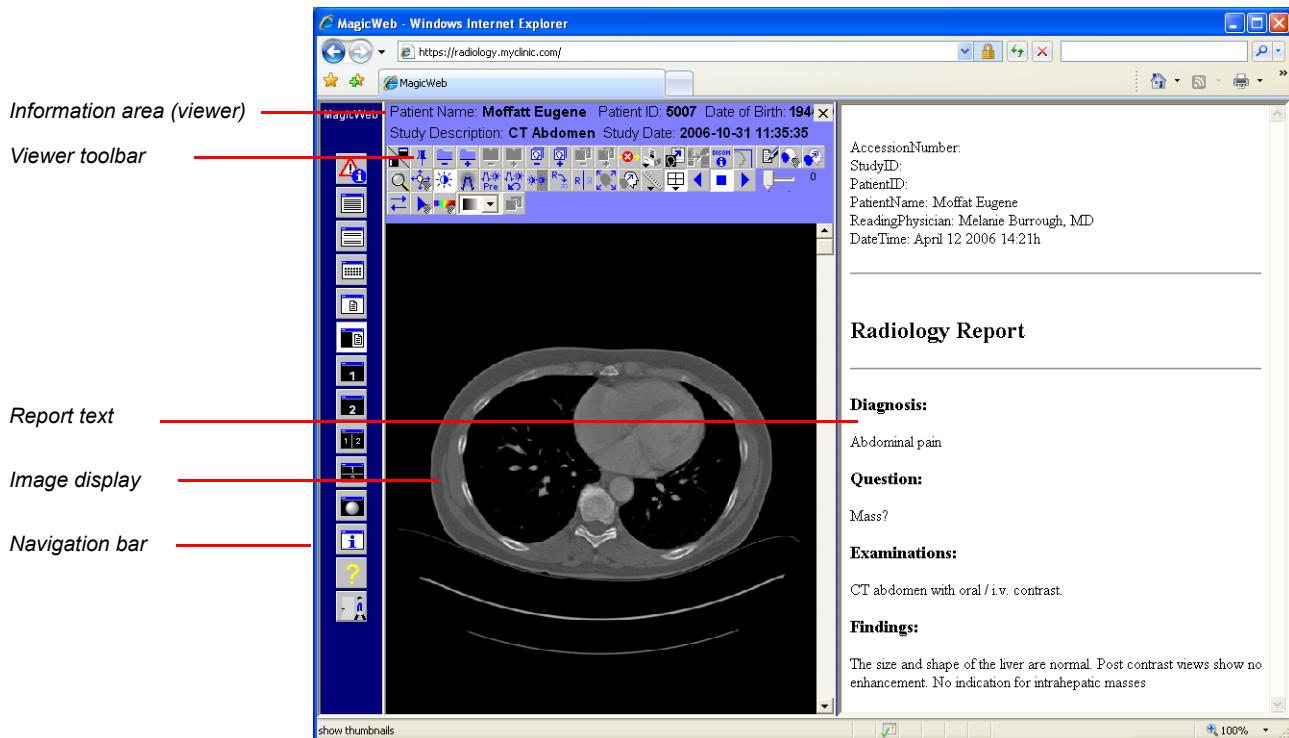
Tip

If your hospital works with a HIS/RIS and normally uses this system to create and manage reports the **Edit Report** icon will most likely not be available in your client installation. Instead the system will automatically query the report node for the latest report version and display it view-only every time you load images.

Consult your system administrator for details about how your system has been configured with respect to report handling.

Dual monitor

Dual monitor operation does not support the text-only view. When you call the report with image view in dual monitor mode, the left monitor shows the image window, the right monitor shows the report.

**Report text**

When you call one of the report windows with the navigation bar icons the report text is shown view only.

From the report with image window you can move on to the MagicWeb report editor. In the text only report window you can only view but not edit a report.

Note

Note that when you edit and save a report in the MagicWeb report editor this will only change the report stored on MagicWeb but not update the report version stored in the HIS/RIS for this study.

Caution

MagicWeb can receive and display DICOM Structured Reports. The layout in which these structured reports are shown in MagicWeb can be configured by Customer Service.

However, if Customer Service makes any layout changes at your request, you must validate these changes to ensure that all relevant report information is actually shown in the HTML report translation of these reports.

Report text display**Header information**

The header of the loaded report shows data about the patient and examination (for example, accession number, study ID, patient name, and patient ID). This data represents the information stored for this study and patient in the HIS/RIS.

Compare this data with the patient information in the viewer section (if you are working in the report with image window) or with the patient's information in the study/series window to ensure the information in the HTML report is up to date.

Report text

If the report is too long for the report window, use the scroll bar to scroll through the report text.

Footnotes

When a report was received from the HIS/RIS in the format DICOM Structured Report it may contain footnote information, which is not immediately visible in the HTML report version shown in the report window.



Move the mouse pointer over these icons which indicate hidden footnote text to show this information in a tooltip.

Report editor

You activate the report editor with this icon in the toolbar of the image display section.

Once you have switched over from view only to editing mode a toolbar appears above the report text with basic text editing and text formatting functions.

Note

You can only edit the report text (white background) but not the report header (gray background).

Report editor toolbar



Save

Saves your changes to the report back to the web server.



Cancel

Undoes your editing and displays the report as you last saved it or as it was stored on the web server before you started editing it.



Font family and size

Allows you to change the font family and size for selected report text.



Cut, Copy, Paste

These icons allow you to cut, copy, and paste text in your report.



Icons for editing characters

With the icons **Bold**, **Italic**, **Underline**, **Strikethrough**, **Superscript**, and **Subscript** you can change the format properties of selected characters.



Icons for paragraph editing

With the icons **Align left**, **Center**, **Right** you can change the alignment of the paragraph in which the text cursor rests at the moment.

With **Numbering** you can create numbered lists, with **Bullets** you can create lists with bullets. Use **Increase Indent** and **Decrease Indent** to indent paragraphs or to remove indentation.

Image display

The image section in the report view contains all those images from the current study that you have loaded into a viewer.

The image display in the report window provides you with the same image display and editing functions as any of the viewer windows.

Viewer toolbar

Use the icons on the toolbar above the image display to change the display of the loaded image, to evaluate image information, and to print images.

See also *Toolbar (viewer)*

Position indicator bar

The position indicator bar below the image display shows you which image of a loaded series is currently visible.

See also *Position indicator bar (viewer)*

Viewers



The viewer windows integrate all functions required for reviewing images.

1

2

In the viewer windows you can scroll through the loaded images, select a screen layout best suited to your problem, optimize image display of individual or all loaded images for the duration of the current MagicWeb session, and evaluate image information.

Viewers 1 and 2

MagicWeb offers you two viewer windows. The layout of the windows and the function of the toolbar icons are identical in both viewers.

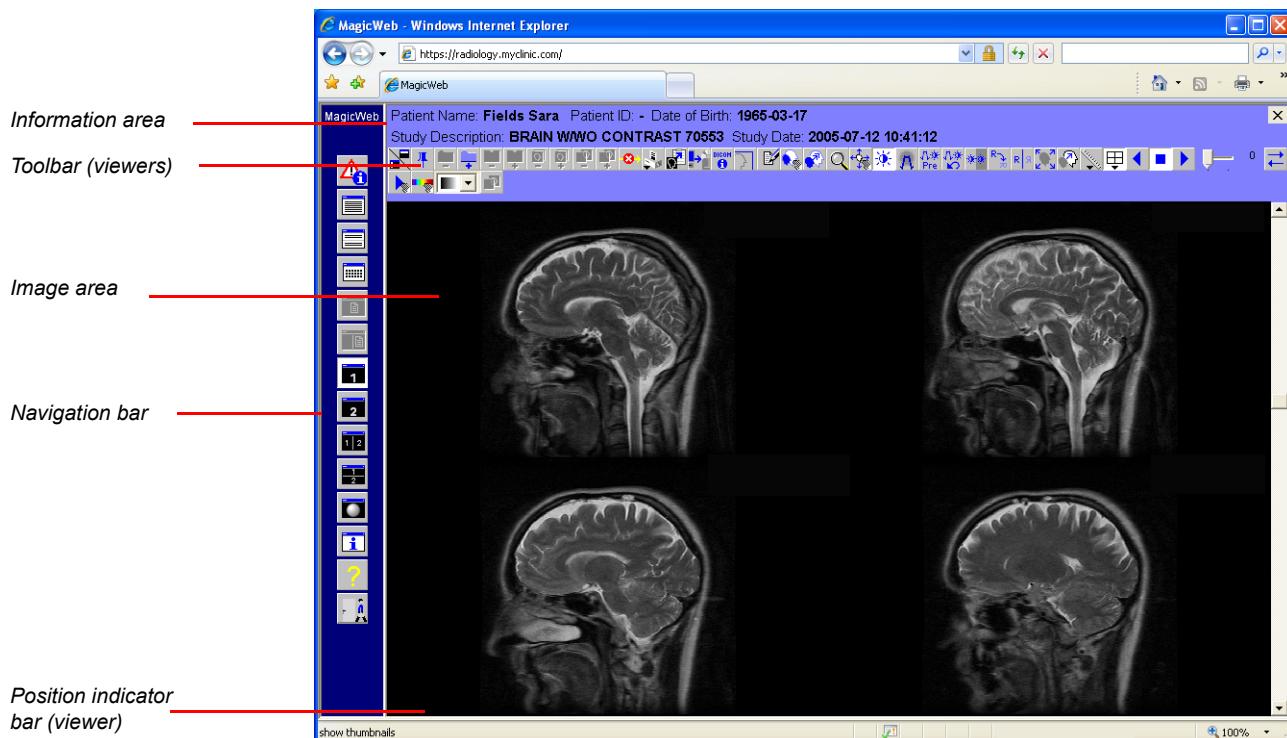
Modality-specific options

Depending on the modality of the loaded images, the toolbar of the viewer may contain a number of extra icons.

- Standard mode: all modalities except for XA
- Angio mode: XA

Dual monitor

In dual monitor operation, the viewer is spread across both monitors. It contains an additional scroll bar on the left monitor for navigating through the loaded images. This is synchronized with the right scroll bar.



Information area (viewer)

This area of the viewer provides information about the loaded patient and study.

Patient Name	Name of the loaded patient.
Patient ID	ID of the loaded patient.
Date of Birth	Date of birth of the loaded patient
Study descrip- tion	Description of the study
Study Date/Time	Date and time of the study in the format: YYYY-MM-DD and hh:mm:ss (24-hour clock).

Toolbar (viewer)

With the icons of the viewer toolbar and the popup menu in the image display area you scroll through the loaded images, change the screen layout, and optimize the image display.

The viewer toolbar is shown as one, two, or three rows of icons, depending on your screen resolution and the number of configured icons.

Note

The selection of available icons depends on what images are loaded (XA images or others), and on how the system administrator has configured the user interface for you.



Change Toolbar Location

Moves the toolbar from above to left of the image area (i.e. horizontal to vertical) and vice versa.



Auto-Hide Toolbar/Lock Toolbar

Hides or redisplays the viewer toolbar. If the toolbar is hidden move the cursor over the area where it would normally be shown to redisplay it temporarily and to access its icons.



Previous Patient

Shows the first study and series of the patient above the patient currently selected in the patient list.



Next Patient

Shows the first study and series of the patient below the patient currently selected in the patient list.



Previous Study

Loads the previous study of the current patient and displays its images.

**Next Study**

Loads the next study of the current patient and displays its images.

**Previous Series**

Loads the previous series of the current study and displays its images. With multiframe images, the previous scene is loaded.

**Next Series**

Loads the next series of the current study and displays its images. With multiframe images, the next scene is loaded.

**Previous Presentation State**

Shows the previous presentation state of this patient and study.

**Next Presentation State**

Shows the next presentation state of this patient and study.

The **Previous/Next Presentation State** icons are dimmed if only one presentation state exists for this study or if no presentation state has been loaded.

**Cancel loading**

Stops loading images.

**Select Images**

Offers options for selecting images for printout on a DICOM printer.

**Select all Images**

Selects all loaded images for DICOM print.

**Range Selection**

Opens a dialog box for range selection.

**Deselect all Images**

Undoes the current selection for DICOM print (no images are selected after you click this icon).

**Print**

Allows you to print images on a connected DICOM or Windows printer.

**Windows Print**

Opens the **Windows Print** dialog box and prompts you to select a printer and print settings.

All images currently displayed on the screen will be printed.

**DICOM Print**

Opens the **DICOM Print** dialog box and prompts you to select a printer and print settings.

Only those images that are marked for DICOM print (solid green box in the lower right-hand corner of the image segment) will be printed.

**Copy to Clipboard**

Copies the currently displayed images to the clipboard. From there, you can paste the copied images into another Windows program (e.g. a presentation or NetMeeting program).

**DICOM Send**

Opens a dialog box. Select the address(es) in your DICOM network to which you want to send the selected image or all loaded images.

**DICOM Quick Send**

Sends the selected image or all loaded images to one or several DICOM nodes immediately. (Your system administrator has defined these addresses for you.)

**Export Images**

Exports the currently displayed images to a directory on your local PC. You can save the images as DICOM images or in BMP or JPEG format.

Caution

When images were saved in BMP or JPEG format they may no longer be suitable for diagnosis.

**DICOM Information**

Shows the DICOM information of the current image.

**Hide/Show Image Text**

Shows or hides text in the image.

**Edit Report**

Opens an existing report for editing or creates a new study report on the web server.

**Zoom**

Allows you to enlarge or reduce the displayed images steplessly using the left mouse button.

While **Zoom** is active, the mouse pointer looks like this:

**Quick Zoom**

Permits temporary zooming of a portion of an image. As soon as you release the mouse button, the image returns to its original size.

While **Quick Zoom** is active, the mouse pointer looks like this:

**Magnifying Glass**

Allows you to enlarge a portion of an image by factor 2. As soon as you release the mouse button, the enlargement is no longer displayed.

While **Magnifying Glass** is active, the mouse pointer looks like this:



**Pan**

Allows you to move the image in the segment. If the portions of the image disappear off the screen after enlargement, you can pan them back into view.

While **Pan** is active, the mouse pointer looks like this:

**Windowing**

If this icon is pressed, you can use the mouse to change the grayscale display (brightness/contrast) in the images.

While **Windowing** is active, the mouse pointer looks like this:

**Edge Enhancement**

This filtering enhances the contrast in images.

While **Edge Enhancement** is active, the mouse pointer looks like this:



Pre

Predefined Level Presets

If different window or filter values are predefined for the current image type, you can call them up here and apply them to the loaded images.

**Reset Window Level**

Resets the window and filter values back to default values (i.e. the values with which the images were loaded).

**Invert**

Inverts the grayscale display of an image. Bright areas are now shown dark and dark areas are shown light.

**Rotate**

Rotates the current image 90° clockwise.

**Mirror**

Mirrors the current image about its vertical axis.

**Fit into Segment**

Resizes the current image to fit it optimally in the image segment.

**Original size**

Resets the loaded image to its original size.

**Measurement Functions**

Opens a selection list with measurement functions.



Distance Measurement

Permits measurement of distances in images.

While this tool is active, the mouse pointer looks like this:



Measured values are indicated in exact millimeters (mm; in CT and MR images), estimated millimeters (mm[?]), or in pixels (pix) if no distance measurement in millimeters is possible.

Caution

The accuracy of distance measurements is ± 2 pixels. Larger errors can occur if the image is displayed with reduced matrix size, that is if not every original pixel is shown on the screen due to zoom-out. For optimum accuracy we recommend zooming into the structure of interest as much as possible. The accuracy is further limited by the physical resolution of the acquisition itself. If the monitor used for display does not permit exact pixel selection, the inaccuracy can be greater still.



Angle Measurement

Permits measurement of angles in images.

While this tool is active, the mouse pointer looks like this:



Caution

The accuracy of angle measurements depends on the length of the shorter of the two angle legs. The longer the angle legs are, the better the accuracy.

For example:

Length of shorter angle leg (measurement error):

10 pixels ($\pm 12^\circ$), 20 pixels ($\pm 6^\circ$), 50 pixels ($\pm 2.5^\circ$), 100 pixels ($\pm 1.1^\circ$)

Larger errors can occur if the image is displayed with reduced matrix size, that is if not every original pixel is shown on the screen due to zoom-out. For optimum accuracy we recommend zooming into the structure of interest as much as possible. The accuracy is further limited by the physical resolution of the acquisition itself. If the monitor used for display does not permit exact pixel selection, the inaccuracy can be greater still.



Calibrate Distance

Permits calibration of distances in images.

While this tool is active, the mouse pointer looks like this:



**Density Measurement**

Permits measurement of grayscale values (pixel values) in images.

While this tool is active, the mouse pointer looks like this:

**ROI Ellipse**

Permits evaluation of circular or elliptical regions of interest (ROIs) in grayscale images.

While this tool is active, the mouse pointer looks like this:

**ROI Rectangle**

Permits evaluation of rectangular regions of interest (ROIs) in grayscale images.

While this tool is active, the mouse pointer looks like this:



Measured values are indicated in exact square millimeters (mm^2 ; in CT and MR images), estimated square millimeters ($\text{mm}[?]^2$), or in pixels (pix) if ROI measurement in millimeters is possible.

Caution

The relative error of the elliptical or rectangular ROI measurements is ± 2 pixels/ (shorter radius or shorter side).

For example:

Shorter radius or shorter side (measurement error):

10 pixels ($\pm 20\%$), 20 pixels ($\pm 10\%$), 50 pixels ($\pm 4\%$), 100 pixels ($\pm 2\%$)

Larger errors can occur if the image is displayed with reduced matrix size, that is if not every original pixel is shown on the screen due to zoom-out. For optimum accuracy we recommend zooming into the structure of interest as much as possible. The accuracy is further limited by the physical resolution of the acquisition itself. If the monitor used for display does not permit exact pixel selection, the inaccuracy can be greater still.

**Density Profile**

Permits evaluation of a density profile along a straight line (an arrow indicates the direction).

While this tool is active, the mouse pointer looks like this:



**Show Scoutlines (compare mode only)**

Shows the position of selected images on the corresponding reference images.

Note that this icon is only shown in the viewer toolbars in compare mode. It will only become active if a CT or MR study has been loaded that contains suitable image data.

**Show All Scoutlines**

Shows all scoutlines in the reference image.

**Show Border Scoutlines**

Shows only the first and last scoutline in the reference image.

**Show Border and Current Scoutlines**

Shows the scoutline of the current image and the first and last scoutline in the reference image.

**Show Current Scoutline**

Shows only the current scoutline in the reference image.

**Display Mode**

Opens a selection list with different layouts.



Select, for example, the **2x2** view. The image display is divided into 4 segments in this example. Depending on the number of images that are loaded, up to 4 images will be displayed at one time.

**Cine Mode Backward**

Plays back the loaded images like a movie. The playback direction is backward.

**Cine Mode Stop**

Stops movie playback.

**Cine Mode Forward**

Plays back the loaded images like a movie. The playback direction is forward.

**Cine Mode Speed**

If the slider is far left, movie playback stops. If the slider is far right, the movie is played back at maximum speed.

**Bouncing Cine**

If you click this icon, the movie will run without interruption: When playback reaches the last image, the movie runs backward to the first image, then forward again, etc.



Interactive Cine Mode

When **Interactive Cine Mode** is active, the images of a series (or scene) will play back when you move the mouse pointer over the image area. This gives the impression of a movie being played back.

Mouse up or right: play forward
 Mouse down or left: play backward
 Mouse stopped: still image

The direction in which you are supposed to move the mouse can be configured by your system administrator.



Gamma Adjustment

Opens a dialog box for the adjustment of the gamma curve of images. This adjustment applies to all MagicWeb image viewers.



Show/Hide Presentation State

Toggles image display: from presentation state image to original referenced image and vice versa. The icon is only active if you have loaded a presentation state.



Display as 3D volume

Shows a loaded series in the MagicWeb 3D Thin Client for advanced 3D evaluation.

The icon is only active when you are reviewing a series for which a 3D volume data set is available on the server.



Automatic Synchronization with 3D volume

Select this option to ensure that both the MagicWeb and the MagicWeb 3D Thin Client will always show images of the same patient.



Mark study as read

Sets the status of the procedure step for this study to completed.

This icon is only active if a procedure step of status scheduled exists for the study whose images are currently shown in the viewer.



Color Map

Allows you to display the loaded images with another color map that highlights your current diagnostic problem in a better way.

Angio mode

In angio mode (with XA images loaded), the toolbar contains a number of additional icons. They provide special display functions for evaluating XA scenes.



Plane A

Switches to plane A for biplane angio scenes.



Plane B

Switches to plane B for biplane angio scenes.

**Loop All**

Successively plays back all loaded scenes of a study.

If you click the **Previous Series** or **Next Series** icon during playback, the movie will jump back to the last scene or on to the next scene.

**Previous Frame**

Scrolls to the previous frame (individual image) of the multiframe.

**Next Frame**

Scrolls to the next frame (individual image) of the multiframe.

**Display Reports**

Displays the report images originating from the XA environment which are assigned to a scene.

**Display Scenes**

Switches back from displaying the report images to displaying the multiframe (scene).

Image area

The image area shows the loaded images with the selected size and in the selected layout. The size of this area depends on the screen resolution and the actual size of the application window.

Icons

Once you have loaded images or started manipulating images icons may appear in the upper right-hand corner of the image segments. These icons alert you to information you should consider when interpreting the images.



Lossy compressed image: The quality of the image may have been affected (artifacts). The quality percentage is indicated next to the icon.

This warning triangle remains visible even if the image texts are hidden.



When loading images into one of its viewers, MagicWeb checks the DICOM header information in every single image.

If this DICOM header information does not agree with the patient and study data stored in the MagicWeb database for one or several images, this icon is displayed in the upper right-hand corner of the affected images.



If you have manipulated a presentation state image this icon appears in the upper right-hand corner. It warns you that the current image no longer corresponds to the image saved in the presentation state at the diagnostic workstation.



This icon in the upper right-hand corner of the image segment indicates that calibration has been applied to distance lines in this image.



This icon indicates that the displayed images do not originate from an original scan series (thin slice series) but were generated by a MagicWeb thick slice compilation rule.

Popup menu



For your convenience the image area of the MagicWeb viewers offers a popup menu for quick and easy access to frequent image processing functions.

Right-click in the image display area.

Note

Note that many image display functions are available from both the toolbar and popup menu. Others functions are available only from the toolbar or only from the popup menu. The following table describes only those functions that have not already been explained in the context of the toolbar.

Apply to All	Applies the last editing step to all images of a loaded series.
Auto Apply to All	When this option is selected, all image editing steps are applied to all images of a loaded series immediately (and not just to one image alone).
Undo	Undoes the last editing step.
Show/Hide Overlays	Shows overlays if any have been created for the loaded images.
Hide/Show Shutter	Shows or hides a shutter, if a shutter was created for the loaded image.
Delete Measurement/Annotation	Deletes a selected measurement or annotation graphic.
Delete all Measurements	Deletes all measurement graphics in the currently selected image.
Delete all Annotations	Deletes all annotation graphics in the currently selected image.
Delete all Measurements and Annotations	Deletes all measurement or annotation graphics in the currently selected image.
Select Image	Selects the current image (i.e. the image highlighted by a white border) for DICOM print. DICOM print selection is indicated by a solid green box in the lower right-hand corner of the image segment.
Remove Image Selection	Removes the current image from the DICOM print selection.
Hide/Show ECG	Shows (or hides) the ECG curve in the image (only possible for XA images containing ECG information).

SMPTE 1/2	Calls one of two available test images for performing a display quality check of your monitor.
Show/Hide Measurements and Annotations	Shows or hides measurement and annotation graphics stored in an image.

Tip

In this client type you can only create measurements and you can delete measurements or annotation graphics only temporarily and for the duration of the current session. You cannot save these changes back to the web server. Saving measurements and annotations back to the web server is possible in client type Advanced Reading only.

Tip

The SMPTE images you can display here are not suitable for calibration of DICOM printouts. Use *TestImage_SMPTE_1k* instead. You find this test case in the patient list. If no patient of this name exists in your patient list, ask your system administrator to insert this test case into the MagicWeb system from your installation medium. We recommend that you protect the *TestImage_SMPTE_1k* test case against deletion, so that it will not be deleted automatically when disc space is running low.

Position indicator bar (viewer)

You will usually have more images loaded than can be displayed simultaneously in the selected layout. The position indicator bar at the bottom edge of the screen tells you which images are visible and which are still in the background.

Yellow bar These images are visible on the screen.

White bar This image is selected.

Blue bar Loaded images are not visible.

Compare mode

Compare mode shows the two viewers side by side or one above the other. You can easily compare two series in this way.



Use these icons on the navigation bar to switch to compare mode (vertical), i.e. side by side, or compare mode (horizontal), i.e. top and bottom.

Image display and editing

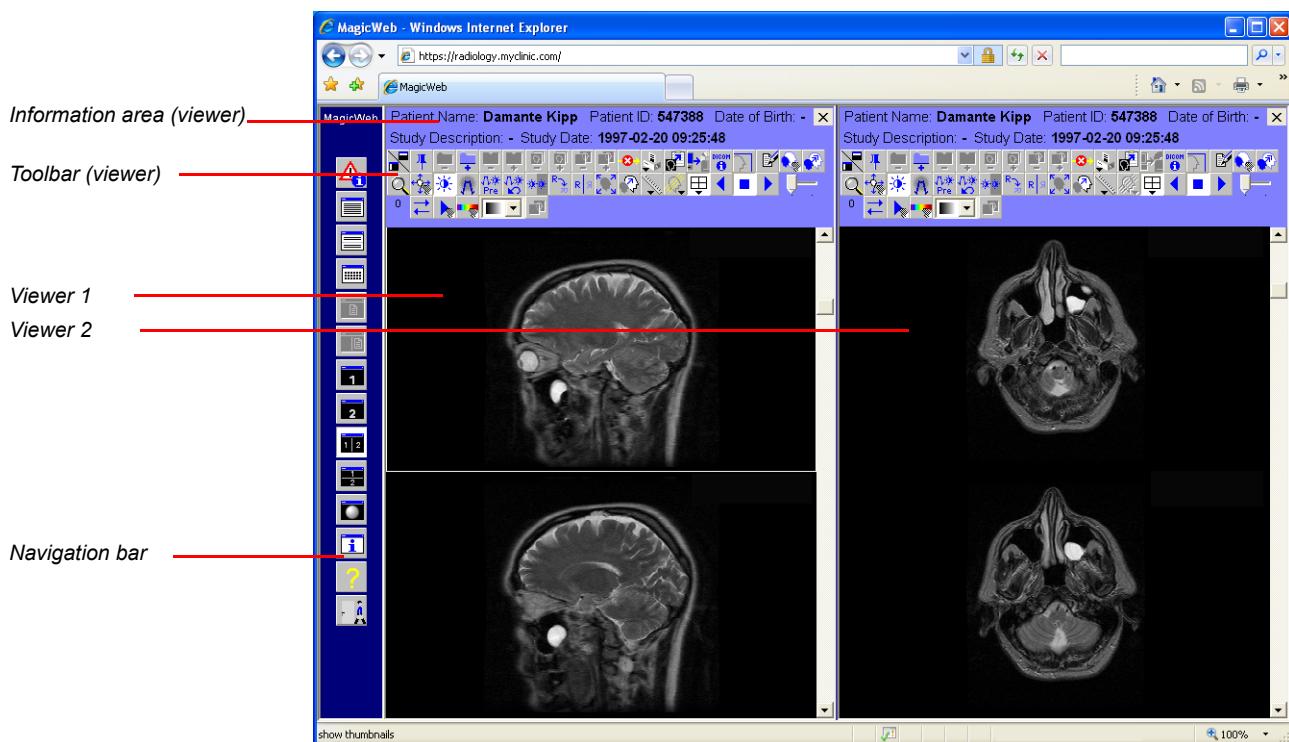
As far as image display and processing is concerned, you can work in both screen halves in just the same way as if a viewer were displayed full screen.

Tip

The toolbars above (or to the left) of each image view contain the same icons and access the same functions as in one of the full screen viewer windows, with one exception: Showing scoutlines in suitable CT or MR images is only possible in compare mode but not in any of the full screen image viewers or the report with image view. If configured, scoutlines are shown by default when you load suitable series into compare mode.

Dual monitor

In dual monitor mode, the two viewers are displayed on the two monitors: viewer 1 on the left and viewer 2 on the right monitor.



Basic MIP/MPR viewer



The basic MIP/MPR Viewer can calculate a volume data set from suitable CT and MR series.

You can move freely through this volume data set, viewing new slice images in any plane or orientation.

Note

The basic MIP/MPR viewer is a display mode only. It allows you to calculate and display new slice images. However, it does not provide measurement tools and you cannot save the recalculated images back to the web server.

If you require advanced 3D evaluation functions contact your Sales Representative concerning the MagicWeb 3D Thin Client option.

Calculation method

The MagicWeb basic MIP/MPR viewer gives you a choice of two 3D calculation methods:

- Multiplanar reconstruction (MPR)
This method is the default method used by the program.
- Maximum intensity projection (MIP)
You can switch each of the four views separately to an MIP-based display.

3D operation

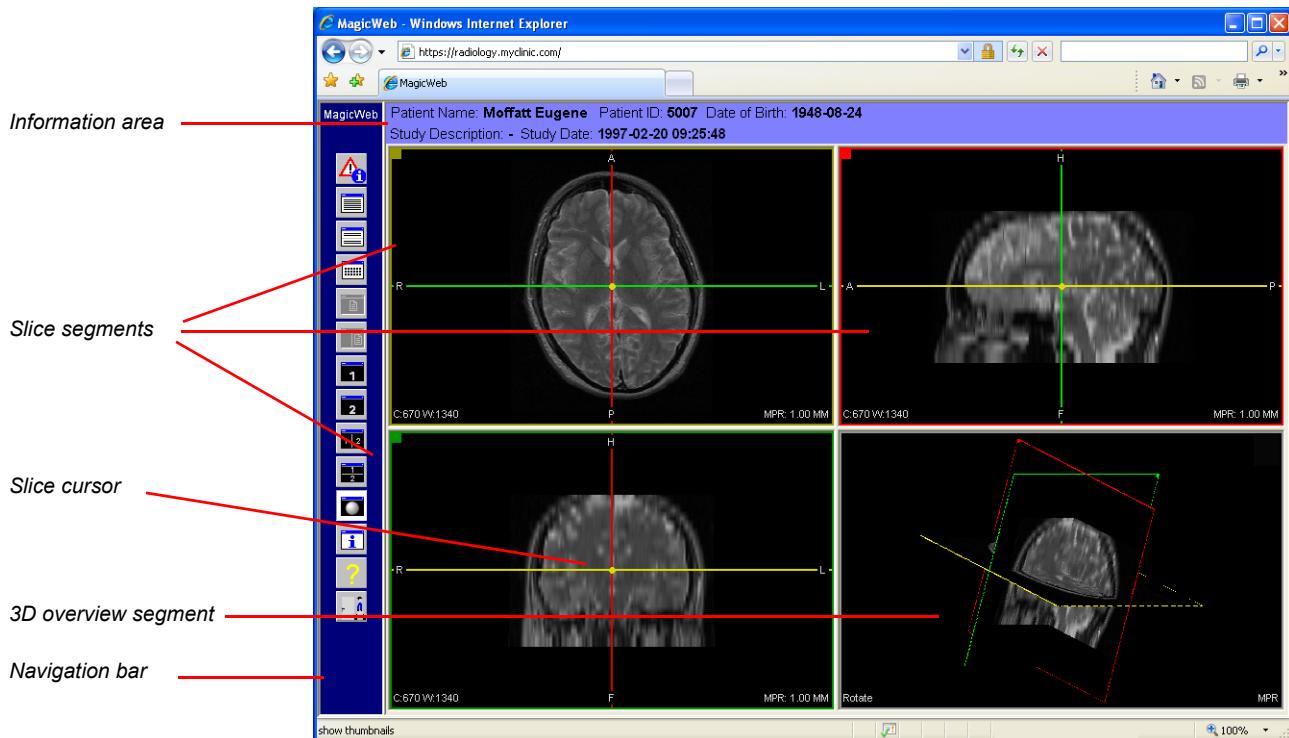
Unlike other MagicWeb windows, the basic MIP/MPR viewer does not provide a toolbar for calling operating functions.

In the basic MIP/MPR viewer, you work with:

- *Popup menu*
- *Keyboard*
- *Mouse clicks*

Dual monitor

If you are working in dual monitor mode, the basic MIP/MPR viewer is only shown on the left monitor.



Information area (basic MIP/MPR viewer)

This area of the basic MIP/MPR viewer provides information about the loaded patient and study.

Patient Name Name of the loaded patient.

Patient ID ID of the loaded patient.

Date of Birth Date of birth of the loaded patient

Study description Description of the study

Study Date/Time Date and time of the study in the format: YYYY-MM-DD and hh:mm:ss (24-hour clock).

3D overview segment

When suitable data is loaded into the basic MIP/MPR viewer, a volume data set is calculated from the acquired slice images. The volume is shown as an orientation cube in the overview segment.

Color coding after loading

Immediately after you have loaded a 3D data set, the anatomical standard views are shown in the slice segments. The orientations of these slices are shown as follows on the orientation cube:

- Surface with **yellow** border - **transverse** standard view
- Surface with **red** border - **sagittal** standard view
- Surface with **green** border - **coronal** standard view

Color coding after moving

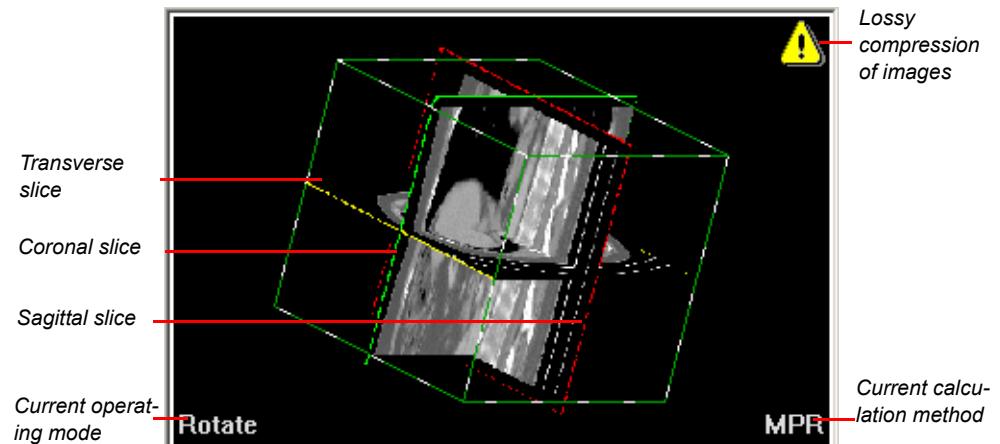
Using the *Slice cursor*, you can change the orientation and position of slices in the slice segments. The slices always remain mutually orthogonal. This calculates and displays new slice images. The slices then no longer correspond to the anatomical standard views. The following now applies:

- Surface with **yellow** border - **upper left** segment
- Surface with **red** border - **upper right** segment
- Surface with **green** border - **lower left** segment

Image processing

To obtain a better view of the orientation and position of the display slices, you can rotate the orientation cube in each direction and change display parameters, such as window values. This is done with the mouse.

Information in the overview segment



Slice segments

After you have loaded the data set, the slice segments first show the anatomical standard views:

- Transverse standard view (upper left, yellow border)
- Sagittal standard view (upper right, red border)
- Coronal standard view (lower left, green border)

Slice cursor

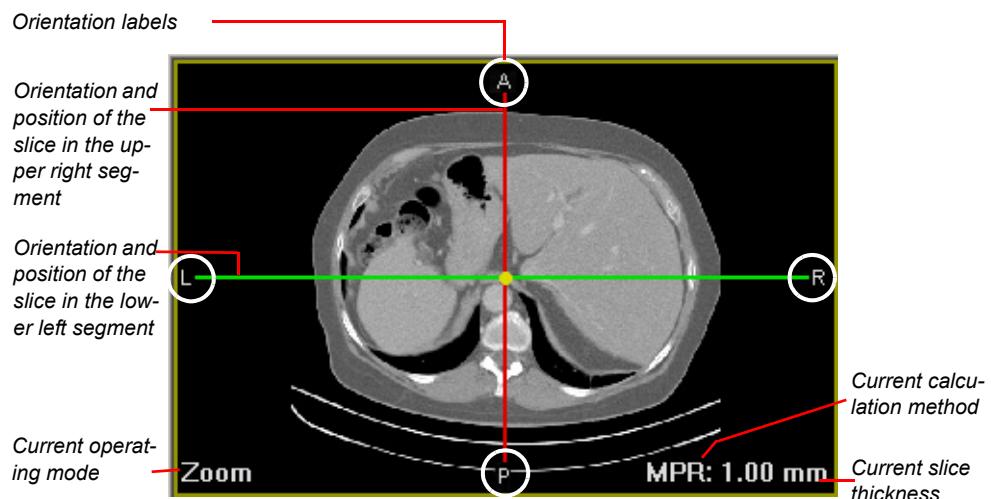
You can ascertain the position and orientation of the two other slices by the color of the *Slice cursor* and from the orientation labels.

You can use the slice cursor to move through the volume data set. You can observe the changes in orientation and position of the slices displayed in the *3D overview segment*.

Image processing

To obtain a better view of details in the displayed slices, you can change different display parameters in the slice segments (e.g. window, zoom, pan).

Information in the slice segments



Example: Upper left segment (after loading images: transverse slice)

Slice cursor

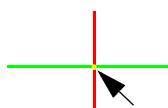
The slice cursor in a slice segment shows you the orientation and position of the slices that are currently shown in the two other slice segments.

Color coding

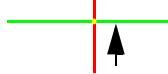
On the slice cursor:

- a **yellow** cursor line corresponds to the slice image in the upper left segment.
- a **red** cursor line corresponds to the slice image in the upper right segment.
- a **green** cursor line corresponds to the slice image in the lower left segment.

Slices in the volume data set You can use the slice cursor of the three slice segments to move through the volume data set and display the recalculated slice images.



If you move the center of the slice cursor, you will move the entire slice cursor in the image. This moves two view planes simultaneously in the volume data set and shows new slice images in both of the other slice segments.



If you click near to the point of intersection on the cursor line, you will only move a single cursor line.

That will take you through the volume data set along the two other standard axes and update the view in one of the other slice segments.



If you click a long way from the point of intersection on the cursor line, you can rotate the slice cursor.

This rotates the cross-hair, updates the views in the two other slice segments, and generates slice images with non-standard views in them.

Tip

You can monitor all your slice cursor movements in the 3D overview segment. This gives you a clear overview of the slices through the volume data set that are currently being displayed in the slice segments.

Popup menu



Right-click on a slice segment or on the 3D overview segment.

A popup menu appears with all the processing options that are possible here.

Apply to All Applies a processing function in the current segment to all other segments, too.

(In the overview segment, only possible for windowing)

Windowing Activates interactive windowing with the mouse.

Zoom Activates interactive image zooming with the mouse.

Pan Activates interactive image panning with the mouse.

Rotate *In the 3D overview segment only*

Allows you to rotate the orientation cube in any direction with the mouse.

SliceShift *In the slice segments only*

Allows you to move the slice currently shown in the slice segment along two standard axes.

Do not accidentally click on the slice cursor line.

SliceThickness	<i>In the slice segments only</i>
	Allows you to change the slice thickness of the image shown in this slice segment interactively.
	Do not accidentally click on the slice cursor line.
View	Opens a submenu:
Fit into Segment	Enlarges or reduces the image so that it fits optimally into the image segment.
Original size	Shows the image in its original size.
Full size	Displays the current segment in full window size. The other three segments are then hidden.
Show All slices	<i>In the 3D overview segment only</i>
	Shows or hides all slices in the overview segment.
Slice1 (2, 3)	<i>In the 3D overview segment only</i>
	Shows or hides display of individual slices.
Volume box	<i>In the 3D overview segment only</i>
	Shows or hides the volume box in the overview segment.
Slice cursor	<i>In the slice segments only</i>
	Shows or hides the slice cursor in a slice segment.
MPR	Selects MPR as the volume calculation method (default).
MIP	Selects MIP as the volume calculation method.
Reset	Resets all processing steps and again shows the images in <i>all</i> segments as they were when first loaded.
Unload	Removes the data set from the basic MIP/MPR viewer. All segments are then empty.

Keyboard

In the basic MIP/MPR viewer you can activate processing modes in the segments via the keyboard.

1. Click on a segment.
2. Then press the corresponding key.

The display switches or the new operating mode is shown bottom left in the segment.

3. Now perform the processing step with the mouse.

w	Activates interactive windowing with the mouse.
z	Activates interactive image zooming with the mouse.
p	Activates interactive image panning with the mouse.

- r** *In the 3D overview segment only*
Allows you to rotate the orientation cube in any direction with the mouse.
- s** *In the slice segments only*
Allows you to move the slice currently shown in the slice segment along two standard axes.
Do not accidentally click on the slice cursor line.
- t** *In the slice segments only*
Allows you to change the slice thickness of the image shown in this slice segment interactively.
Do not accidentally click on the slice cursor line.
- f** Enlarges or reduces the image so that it fits optimally into the image segment.
- o** Shows the image in its original size.
- s** *In the 3D overview segment only*
Shows or hides all slices in the overview segment.
- 1 (2, 3)** *In the 3D overview segment only*
Shows or hides display of individual slices.
- v** *In the 3D overview segment only*
Shows or hides the volume box in the overview segment.
- c** *In the slice segments only*
Shows or hides the slice cursor in a slice segment.
- x** Resets all processing steps and again shows the images in all segments as they were when first loaded.

Mouse clicks

In the basic MIP/MPR viewer you can also switch operating steps and calculation modes using mouse clicks.

1. Left-click on the display of the operating mode in a segment to scroll forward through the operating modes.
-Or-
Right-click to scroll backward through the operating modes.
2. Left-click on the display of the calculation method in the lower right corner of the segments to switch between MPR and MIP.

Worklist (Advanced Reading)



When you call MagicWeb with client type **Advanced Reading** the patient window is shown in worklist view.

Tip

Filter this list according to interpretation status SCHEDULED for a quick and easy overview of all studies that are scheduled for reporting.

Single or dual monitor

Your user profile stores your monitor configuration. This means, the system will remember whether you worked with a single monitor or dual monitors during your last MagicWeb session.

Information area (worklist)

Filter parameters and search criteria

Navigation bar

System messages

Toolbar (worklist)

Data source

Monitor selection

Display protocols list

Patient list (local) or Response list (network node)

Study list (worklist)

Patient Name	Patient ID	Date of Birth	Sex	Insertion Date	Display Protocol	Description	Monitor
Brasher Regina	10020385	1937-01-18	F	2008-01-16 01...	Series View	One series per view...	1
Damone Repp	10020396	1940-04-12	M	2008-01-16 01...	Blank Viewports	Use drag and drop t...	1
Fields Sara	10020399	1965-03-17	F	2008-01-16 09...			
Hogan Clark	10010200	1927-02-23	M	2008-01-16 11...			
Moffatt Eugene	10020396	1928-02-18	M	2008-01-16 01...			
Purdon Ellen	10020389	1939-05-17	F	2008-01-16 01...			
Thorson Mathea	10020386	1933-02-19	F	2008-01-16 09...			

Information area (worklist)

This area of the patient window shows the user name you are logged in with.



Hide/show filter criteria

Use this icon for collapsing (or expanding) the filter parameters and search criteria section of the screen.

Worklist Active window where you are now.

User name User currently logged in.

Filter parameters and search criteria

In the worklist view of the patient window you can filter the patient list and search for specific patients and studies in just the same way as you can in the patient window of the client types View, Basic, and Advanced.

Therefore, refer to the following sections for details about filter and search criteria:

- *Filter parameters* on page 28
- *Search criteria* on page 29

Toolbar (worklist)

In the worklist, you start all processing steps with the icons on the toolbar.



User-defined filter

You can select a predefined filter here.



Reset to Default Filter

Activates the filter defined as the default filter.



Set Filter Properties

The **Personal Settings** dialog box opens. You can define your own filters here.



Reset Filter Settings

All the filter parameters you entered are removed. Click **Start Data Query** to display the unfiltered patient list again.



Reset Input Fields

All the search criteria you entered are removed. Click **Start Data Query** to display a longer patient list again.

**Data source**

Here you select where to search for data: on the local web server database or on a DICOM network node.

**Start Data Query**

Starts a data query with the current filter and search criteria in the selected data source.

As a result the patient list of the web server or a response list from a DICOM node will be displayed.

**Cancel Data Query**

A query currently in progress is stopped. All patients found so far are displayed.

**Retrieve Study from DICOM Node**

If you did not request data in the local database, but on a network node, you will see the response list of the DICOM node in the patient window.

If you find the patient you are looking for in this list, you nevertheless cannot work with this data immediately. You must first copy the patient to the local database with this icon.

This icon is dimmed while the data source web server is selected, or while no patient is selected in a network response list.

**Query Patient**

This icon is active if a patient was selected in the local patient list and then a DICOM partner was selected in the data source drop-down list.

The patient name and the patient ID of this patient are copied into the search criteria boxes and the search for this patient is started on the DICOM partner.

**Forward**

For a better overview the patient list does not display all patients found at a time.

After a very generic patient search that results in more patients found, click this icon to page through the list of all patients found.

**Backward**

Click this icon to page backward through the list of all patients found.

**DICOM Send**

Opens a dialog box. Select the address(es) in your DICOM network to which you want to send the selected patient(s).

**DICOM Quick Send**

Sends the selected patient(s) to one or several DICOM nodes immediately. (Your system administrator has defined these addresses for you.)

**Change Group Assignment**

The **Change Group Assignment** dialog box opens. Here you can define which user groups have access to the selected patients.

**Change User Assignment**

The **Change User Assignment** dialog box opens. Here you can define which users have access to the selected patients.

**Launching Application**

Starts another web application if your system administrator has configured this for you.

The icon is only active if you have selected a patient.

**Change Procedure Step**

Procedure steps are tasks in the diagnostic reading workflow. With MagicWeb you can follow up on the task interpretation from scheduling this task to completion.

For studies for which no procedure step exists: Creates a new procedure step and allows you to assign the new procedure step a priority.

For studies for which a procedure step exists: Allows you to delete the procedure step, mark it as completed (or reset it to scheduled), or change its priority.

**Encrypted Data Transfer**

The images are transmitted encrypted.

**Non-encrypted Data Transfer**

The images are transmitted without encryption.

**Compression Level A**

Transfers images with compression level A. In compression level A, the images are usually only slightly compressed and without loss of quality. Your system administrator defines the compression rules.

**Compression Level B**

Transfers images with compression level B, which compresses the images even more.

Note that compressed images do not contain the full volume of data of the original. The diagnostic quality of the images is affected as a result.

**Preferably load thin slices**

When this option is selected the system will always load the original scans.

When the option is deselected the system will load a thick slice series instead of the original thin slice series if such a thick slice series is available on the MagicWeb server.

**Display as 3D volume**

Shows the selected study in the MagicWeb 3D Thin Client for advanced 3D evaluation.

**Automatic Synchronization with 3D volume**

Select this option to ensure that both the MagicWeb and the MagicWeb 3D Thin Client will always show images of the same patient.

Monitor selection

Here you select the monitor configuration you are working with, that is whether you are working with a single or dual monitors.

This selection also filters the display protocols list. When you select *1 Monitor - Landscape*, for example, only those protocols are listed that have been optimized for single monitors with landscape display.



Select your monitor configuration and filter for the display protocols list.

All protocols shows all display protocols irrespective of their orientation and suitability for a particular monitor configuration.

Patient list (local)

The local patient list shows all patients found in the web server database who match the search criteria, and to whom you have access.

The patient list contains only *one* entry for each patient even if several studies exist for this patient.

Tip

You can sort the list by clicking on a column header.

Patient Name Name of the patient

Patient ID Patient's identification number

Date of Birth Date of birth in YYYY-MM-DD format

Sex **M** = male, **F** = female, **O** = other (unknown)

Insertion Date Date and time when the patient data was sent to the MagicWeb server.

Response list (network node)

If you selected a network node as the data source instead of querying the local MagicWeb server, you will see the response list of the DICOM node instead of the local patient list.

Here a patient name may be listed more than once as each entry represents exactly one study.

Tip

You cannot load patient data directly from the response list of a DICOM node into the display protocol viewer. You must first copy a patient to the local database by double-clicking the patient entry, or with the **Retrieve Study from DICOM Node** icon.

For an explanation of columns in the response list from a network node refer to section *Response list (network node)* on page 33.

Display protocols list

Here you find a list of all display protocols that are suitable for the selected monitor configuration and study data.

Display Protocol	Name of the display protocol, which usually includes a description of how many viewports will be available in the viewer as well as an indication of the display layout used in these viewports.
Description	More detailed description for a display protocol.
Monitors	Indicates whether this display protocol supports single or dual monitor configuration.
Orientation	Indicates whether this display protocol supports landscape or portrait displays.
Ranking	Suitability ranking of a display protocol for the study data selected in the patient or study list section of this window.
	This column may be hidden.

Study list (worklist)

Lists all studies that are available on the MagicWeb server for the selected patient.

Procedure Step	Indicates whether a procedure step exists for this study.
Status	Indicates the status of the procedure step: scheduled, in progress, discontinued, or completed.
Performer	Indicated the name of the MagicWeb user who is currently reviewing the images of this study, or who completed a procedure step.
Priority	Low, medium, or high. You can use this column to sort the study list, for example.
Study Date/Time	Date and time of the study in the format: YYYY-MM-DD and hh:mm:ss (24-hour clock).

Modalities in Study	Modalities used to examine the patient.
Image Series	Number of series in this study.
Study Description	Description of the study
Referring Physician	Name of the referring physician
Accession Number	Job number of the patient in the HIS/RIS (hospital or radiology information system)
Study ID	Study's identification number
Reading Physician	Name of the physician who read this study on the system that sent the data to MagicWeb.
Study Comment	Comment text about the study.

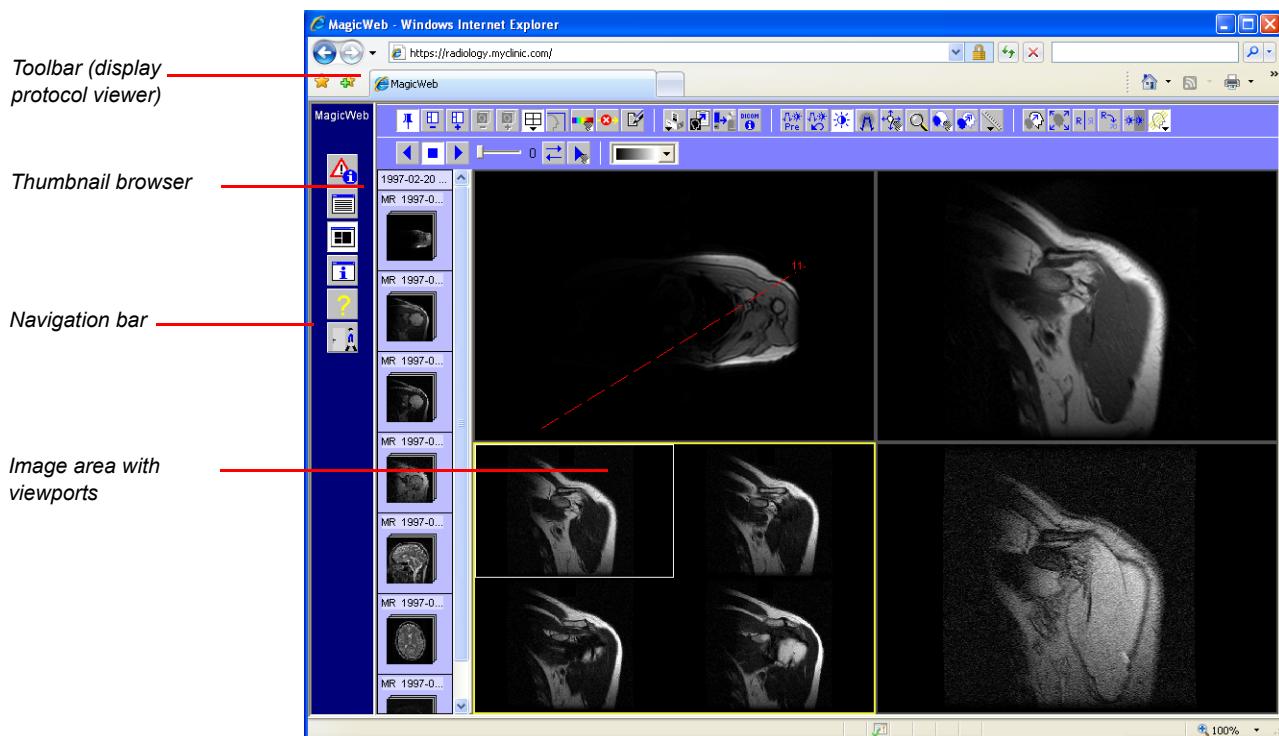
Display Protocol Viewer (Advanced Reading)



In client type **Advanced Reading** the display protocol viewer replaces the viewer and report windows of the other client types.

Caution

When reviewing images of a current and previous study be sure to show image texts in the display protocol viewer. This will help you distinguish the two studies in the various viewports. Be sure you have correctly identified the current study when reporting on the image data.



Thumbnail browser

The thumbnails in this section of the screen represent the series you selected from the worklist. The series thumbnails are grouped by study (if you have loaded more than one study).

You can load series into the viewports of the image area from here (drag & drop).

Toolbar (display protocol viewer)



Auto-Hide Toolbar/Lock Toolbar

Hides or redisplays the viewer toolbar. If the toolbar is hidden move the cursor over the area where it would normally be shown to redisplay it temporarily and to access its icons.



Display Mode

Opens a selection list with different layouts. Here you can switch from stack mode to tile mode in the currently selected viewport.



Select, for example, the **2x2** view. The viewport is divided into 4 segments in this example. Depending on the number of images that are loaded, up to 4 images will be displayed in the selected viewport at one time.



Next Viewer Layout

Loads the next viewer layout defined in the currently active display protocol.



Previous Viewer Layout

Loads the previous viewer layout from the currently active display protocol.



Previous Scene

Loads the previous scene of a series containing several multiframe images (or scenes).



Next Scene

Loads the next scene of a series containing several multiframe images (or scenes)



Hide/Show Image Text

Shows or hides text in the image.



Gamma Adjustment

Opens a dialog box for the adjustment of the gamma curve of images. This adjustment applies to all MagicWeb image viewers.



Cancel loading

Stops loading images.



Mark study as read

Sets the status of the procedure step for this study to completed.

This icon is only active if a procedure step exists for the study whose images are currently shown in the viewer.



Edit Report

Opens an existing report for editing or creates a new study report on the web server.



Select Images

Offers options for selecting images for printout on a DICOM printer.



Select all Images

Selects all loaded images for DICOM print.

**Range Selection**

Opens a dialog box for range selection.

**Deselect all Images**

Undoes the current selection for DICOM print (no images are selected after you click this icon).

**Print**

Allows you to print images on a connected DICOM or Windows printer.

**Windows Print**

Opens the **Windows Print** dialog box and prompts you to select a printer and print settings.

**DICOM Print**

Opens the **DICOM Print** dialog box and prompts you to select a printer and print settings.

Only those images that are marked for DICOM print (solid green box in the lower right-hand corner of the image segment) will be printed.

**Copy to Clipboard**

Copies the currently displayed images to the clipboard. From there, you can paste the copied images into another Windows program (e.g. a presentation or NetMeeting program).

**Export Images**

Exports the currently displayed images to a directory on your local PC. You can save the images as DICOM images or in BMP or JPEG format.

**DICOM Information**

Shows the DICOM information of the current image.

**Predefined Level Presets**

If different window or filter values are predefined for the current image type, you can call them up here and apply them to the loaded images.

**Reset Window Level**

Resets the window and filter values back to default values (i.e. the values with which the images were loaded).

**Windowing**

If this icon is pressed, you can use the mouse to change the grayscale display (brightness/contrast) in the images.

While **Windowing** is active, the mouse pointer looks like this:





Edge Enhancement

This filtering enhances the contrast in images.

While **Edge Enhancement** is active, the mouse pointer looks like this:



Pan

Allows you to move the image in the segment. If the portions of the image disappear off the screen after enlargement, you can pan them back into view.

While **Pan** is active, the mouse pointer looks like this:



Magnifying Glass

Allows you to enlarge a portion of an image by factor 2. As soon as you release the mouse button, the enlargement is no longer displayed.

While **Magnifying Glass** is active, the mouse pointer looks like this:



Zoom

Allows you to enlarge or reduce the displayed images steplessly using the left mouse button.

While **Zoom** is active, the mouse pointer looks like this:



Quick Zoom

Permits temporary zooming of a portion of an image. As soon as you release the mouse button, the image returns to its original size.

While **Quick Zoom** is active, the mouse pointer looks like this:



Measurement Functions

Opens a selection list with measurement functions.



Distance Measurement

Permits measurement of distances in images.

While this tool is active, the mouse pointer looks like this:



Measured values are indicated in exact millimeters (mm; in CT and MR images), estimated millimeters (mm[?]), or in pixels (pix) if no distance measurement in millimeters is possible.

Caution

The accuracy of distance measurements is ± 2 pixels. Larger errors can occur if the image is displayed with reduced matrix size, that is if not every original pixel is shown on the screen due to zoom-out. For optimum accuracy we recommend zooming into the structure of interest as much as possible. The accuracy is further limited by the physical resolution of the acquisition itself. If the monitor used for display does not permit exact pixel selection, the inaccuracy can be greater still.

**Angle Measurement**

Permits measurement of angles in images.

While this tool is active, the mouse pointer looks like this:

**Caution**

The accuracy of angle measurements depends on the length of the shorter of the two angle legs. The longer the angle legs are, the better the accuracy.

For example:

Length of shorter angle leg (measurement error):

10 pixels ($\pm 12^\circ$), 20 pixels ($\pm 6^\circ$), 50 pixels ($\pm 2.5^\circ$), 100 pixels ($\pm 1.1^\circ$)

Larger errors can occur if the image is displayed with reduced matrix size, that is if not every original pixel is shown on the screen due to zoom-out. For optimum accuracy we recommend zooming into the structure of interest as much as possible. The accuracy is further limited by the physical resolution of the acquisition itself. If the monitor used for display does not permit exact pixel selection, the inaccuracy can be greater still.

**Calibrate Distance**

Permits calibration of distances in images.

While this tool is active, the mouse pointer looks like this:

**Density Measurement**

Permits measurement of grayscale values (pixel values) in images.

While this tool is active, the mouse pointer looks like this:

**ROI Ellipse**

Permits evaluation of circular or elliptical regions of interest (ROIs) in grayscale images.

While this tool is active, the mouse pointer looks like this:



**ROI Rectangle**

Permits evaluation of rectangular regions of interest (ROIs) in grayscale images.

While this tool is active, the mouse pointer looks like this:



Measured values are indicated in exact square millimeters (mm^2 ; in CT and MR images), estimated square millimeters ($\text{mm}[?]^2$), or in pixels (pix) if ROI measurement in millimeters is possible.

Caution

The relative error of the elliptical or rectangular ROI measurements is ± 2 pixels/ (shorter radius or shorter side).

For example:

Shorter radius or shorter side (measurement error):

10 pixels ($\pm 20\%$), 20 pixels ($\pm 10\%$), 50 pixels ($\pm 4\%$), 100 pixels ($\pm 2\%$)

Larger errors can occur if the image is displayed with reduced matrix size, that is if not every original pixel is shown on the screen due to zoom-out. For optimum accuracy we recommend zooming into the structure of interest as much as possible. The accuracy is further limited by the physical resolution of the acquisition itself. If the monitor used for display does not permit exact pixel selection, the inaccuracy can be greater still.

**Density Profile**

Permits evaluation of a density profile along a straight line (an arrow indicates the direction).

While this tool is active, the mouse pointer looks like this:

**Original size**

Resets the loaded image to its original size.

**Fit into Segment**

Resizes the current image to fit it optimally in the image segment.

**Mirror**

Mirrors the current image about its vertical axis.

**Rotate**

Rotates the current image 90° clockwise.

**Invert**

Inverts the grayscale display of an image. Bright areas are now shown dark and dark areas are shown light.

**Show Scoutlines**

Shows the position of selected images on the corresponding reference images.

Note that this icon will only become active if a CT or MR study has been loaded that contains suitable image data.

**Show All Scoutlines**

Shows all scoutlines in the reference image.

**Show Border Scoutlines**

Shows only the first and last scoutline in the reference image.

**Show Border and Current Scoutlines**

Shows the scoutline of the current image and the first and last scoutline in the reference image.

**Show Current Scoutline**

Shows only the current scoutline in the reference image.

**Cine Mode Backward**

Plays back the loaded images like a movie. The playback direction is backward.

**Cine Mode Stop**

Stops movie playback.

**Cine Mode Forward**

Plays back the loaded images like a movie. The playback direction is forward.

**Cine Mode Speed**

If the slider is far left, movie playback stops. If the slider is far right, the movie is played back at maximum speed.

**Bouncing Cine**

If you click this icon, the movie will run without interruption: When playback reaches the last image, the movie runs backward to the first image, then forward again, etc.

**Interactive Cine Mode**

When **Interactive Cine Mode** is active, the images of a series (or scene) will play back when you move the mouse pointer over the image area. This gives the impression of a movie being played back.

Mouse up or right: play forward

Mouse down or left: play backward

Mouse stopped: still image

The direction in which you are supposed to move the mouse can be configured by your system administrator.

**Display as 3D volume**

Shows the selected study in the MagicWeb 3D Thin Client for advanced 3D evaluation.

**Automatic Synchronization with 3D volume**

Select this option to ensure that both the MagicWeb and the MagicWeb 3D Thin Client will always show images of the same patient.

**Color Map**

Allows you to display the loaded images with another color map that highlights your current diagnostic problem in a better way.

Image area with viewports

For most display protocols the image area of this viewer is subdivided into several viewports. Viewports are semi-independent viewer segments, which you use to compare images and series from the same or different studies.

Viewports can be linked for synchronized scrolling. All other image navigation and manipulation functions apply only to the images in the viewport that is currently active (highlighted by a colored border).

Double-click a viewport to show it fullscreen. Double-click a second time to return to the viewport's original size and location.

Use the +/- or number (1, ...8) keys on your keyboard to display more viewports or to hide viewports or to switch between predefined layouts.

Icons

Once you have loaded images or started manipulating images icons may appear in the upper right-hand corner of the image segments. These icons alert you to information you should consider when interpreting the images.



Lossy compressed image: The quality of the image may have been affected (artifacts). The quality percentage is indicated next to the icon.

This warning triangle remains visible even if the image texts are hidden.



When loading images into one of its viewers, MagicWeb checks the DICOM header information in every single image.

If this DICOM header information does not agree with the patient and study data stored in the MagicWeb database for one or several images, this icon is displayed in the upper right-hand corner of the affected images.



The display protocol may define the sort order for the images of a series in the display protocol viewer according to certain criteria. If images cannot be sorted according to these criteria the system alerts you to this fact with this icon.



This icon in the upper right-hand corner of the image segment indicates that calibration has been applied to distance lines in this image.



This icon indicates that the displayed images do not originate from an original scan series (thin slice series) but were generated by a MagicWeb thick slice compilation rule.

Popup menu

For your convenience the image area of the MagicWeb viewers offers a popup menu for quick and easy access to frequent image processing functions.



Right-click in the image display area.

Note

Note that many image display functions are available from both the toolbar and popup menu. Others functions are available only from the toolbar or only from the popup menu. The following table describes only those functions that have not already been explained in the context of the toolbar.

Apply to All	Applies the last editing step to all images of a loaded series.
Auto Apply to All	When this option is selected, all image editing steps are applied to all images of a loaded series immediately (and not just to one image alone).
Undo	Undoes the last editing step.
Show/Hide Overlays	Shows overlays if any have been created for the loaded images.
Hide/Show Shutter	Shows or hides a shutter, if a shutter was created for the loaded image.
Delete Measurement/Annotation	Deletes a selected measurement or annotation graphic.
Delete all Measurements	Deletes all measurement graphics in the currently selected image.
Delete all Annotations	Deletes all annotation graphics in the currently selected image.
Delete all Measurements and Annotations	Deletes all measurement or annotation graphics in the currently selected image.
Select Image	Selects the current image (i.e. the image highlighted by a white border) for DICOM print. DICOM print selection is indicated by a solid green box in the lower right-hand corner of the image segment.
Remove Image Selection	Removes the current image from the DICOM print selection.
SMPTE 1/2	Calls one of two available test images for performing a display quality check of your monitor.
Synchronized Scrolling	Allows you to select a mode for synchronized scrolling.
Show/Hide Measurements and Annotations	Shows or hides measurement and annotation graphics stored in an image.

Tip

The SMPTE images you can display here are not suitable for calibration of DICOM printouts. Use *TestImage_SMPTE_1k* instead. You find this test case in the patient list. If no patient of this name exists in your patient list, ask your system administrator to insert this test case into the MagicWeb system from your installation medium. We recommend that you protect the *TestImage_SMPTE_1k* test case against deletion, so that it will not be deleted automatically when disc space is running low.

Appendix

List of supported modality types and abbreviations

Abbreviation	Modality
CR	Computed Radiography
CT	Computed Tomography
DR	Digital Radiography
DX	Digital Radiography
ES	Endoscopy
GM	General Microscopy
IO	Intra-oral Radiography
MG	Mammography
MR	Magnetic Resonance
NM	Nuclear Medicine
OT	Other
PR	Presentation State
PT	Positron emission tomography (PET)
PX	Panoramic X-Ray
RF	Radio Fluoroscopy
RT	Radiotherapy Image
SM	Slide Microscopy
SR	SR Document
US	Ultrasound
XA	X-Ray Angiography
XC	External-camera Photography

Overview of functionality supported by client types

Navigation bar

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Patient window	x	x	x	
				
Worklist				x
				
Study/series window	x	x	x	
				
Preview window	x	x	x	
				
Report window	x	x	x	
				
Report with image	x	x	x	
				
Viewer 1	x	x	x	
				
Viewer 2	x	x	x	
				

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Compare mode (vertical)	x	x	x	
				
Compare mode (horizontal)	x	x	x	
				
Basic MIP/MPR Viewer			x	
				
Display protocol viewer				x
				
Status information	x	x	x	x
				

Patient window or worklist

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Hide/show filter criteria		x	x	x
				
Filter parameters (all)	x	x	x	x
Search parameters (all)	x	x	x	x
User-defined filter		x	x	x
				

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Reset to Default Filter		X	X	X
				
Set Filter Properties		X	X	X
				
Reset Filter Settings		X	X	X
				
Reset Input Fields		X	X	X
				
Data source	local DB only	X	X	X
<input type="button" value="Web server"/>				
Start Data Query	X	X	X	X
				
Cancel Data Query	X	X	X	X
				
Retrieve Study from DI-COM Node		X	X	X
				
Query Patient		X	X	X
				
DICOM Send		X	X	X
				
DICOM Quick Send		X	X	X
				

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Forward	x	x	x	x
				
Backward	x	x	x	x
				
Set Delete Protection		x	x	
				
Remove Delete Protection		x	x	
				
Delete Patients		x	x	
				
Change Group Assignment		x	x	x
				
Change User Assignment		x	x	x
				
Export Patient			x	
				
Launching Application		x	x	x
				

Study/series window or worklist

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Presentation state tab card	x	x	x	
Previous Patient	x	x	x	
				
Next Patient	x	x	x	
				
Show all Studies	x	x	x	
				
Load into viewer 1	x	x	x	
				
Load into viewer 2	x	x	x	
				
Load to Compare Mode		x	x	
				
Load to Compare Mode		x	x	
				
Load to Basic MIP/ MPR Viewer			x	
				
Load all series as one	x	x	x	
				

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Refresh	x	x	x	
				
Delete object		x	x	
				
Change Procedure Step			x	x
				
Archive Protection (only with archive option)		x	x	
				
Compression Level A	x	x	x	x
				
Compression Level B	x	x	x	x
				
Encrypted Data Transfer	x	x	x	x
				
Non-encrypted Data Transfer	x	x	x	x
				
Query Report		x	x	
				
Use Local Cache	x	x	x	
				

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Preload Study	x	x	x	
				
Image Preview on / off	x	x	x	
				
Truncate Thumbnails for Large Series	x	x	x	
				
Select all previews	x	x	x	
				
Deselect all previews	x	x	x	
				
DICOM Information	x	x	x	
				
Launching Application		x	x	x
				
DICOM Send		x	x	x
				
DICOM Quick Send		x	x	x
				
Display as 3D volume	x	x	x	x
				

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Synchronize with 3D volume	x	x	x	x
				
Show/Hide Thin Slice Series	x	x	x	x
				
Marked images filter		x	x	
				

Viewers

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Change Toolbar Location	x	x	x	
				
Auto-Hide Toolbar/Lock Toolbar	x	x	x	x
				
Previous Patient	x	x	x	
				
Next Patient	x	x	x	
				
Previous Study	x	x	x	
				

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Next Study	x	x	x	
				
Previous Series	x	x	x	
				
Next Series	x	x	x	
				
Previous Scene	x	x	x	x
				
Next Scene	x	x	x	x
				
Previous Presentation State	x	x	x	
				
Next Presentation State	x	x	x	
				
Cancel loading	x	x	x	x
				
Select Images			x	
				
Windows Print		x	x	x
				

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
DICOM Print			X	X
Copy to Clipboard	X	X	X	X
DICOM Send		X	X	X
DICOM Quick Send		X	X	X
Export Images			X	X
DICOM Information	X	X	X	X
Hide/Show Image Text	X	X	X	X
Zoom	X	X	X	X
Quick Zoom		X	X	X
Magnifying Glass		X	X	X
Pan	X	X	X	X

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Windowing	x	x	x	x
				
Edge Enhancement	x	x	x	x
				
Predefined Level Pre-sets	x	x	x	x
				
Reset Window Level	x	x	x	x
				
Invert	x	x	x	x
				
Rotate	x	x	x	x
				
Mirror	x	x	x	x
				
Fit into Segment	x	x	x	x
				
Original size	x	x	x	x
				
Measurement Func- tions		x	x	x
				

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Show Scoutlines (compare mode only)		X	X	X
Display Mode	X	X	X	X
Previous Viewer Layout				X
Next Viewer Layout				X
Cine Mode Backward	X	X	X	X
Cine Mode Stop	X	X	X	X
Cine Mode Speed	X	X	X	X
Bouncing Cine	X	X	X	X
Interactive Cine Mode	X	X	X	X
Gamma Adjustment			X	X

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Show/Hide Presentation State	x	x	x	
Edit report			x	x
Color Map		x	x	x
Display as 3D volume	x	x	x	x
Automatic Synchronization with 3D volume	x	x	x	x
Plane A	x	x	x	
Plane B	x	x	x	
Loop All	x	x	x	
Previous Frame	x	x	x	
Next Frame	x	x	x	

	Client type View	Client type Basic	Client type Advanced	Client type Advanced Reading
Display Reports	x	x	x	
				
Display Scenes	x	x	x	
				
Hide/Show ECG		x	x	
Mark as read			x	x
				
Synchronized scrolling				x

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REF: 750-700391-04

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